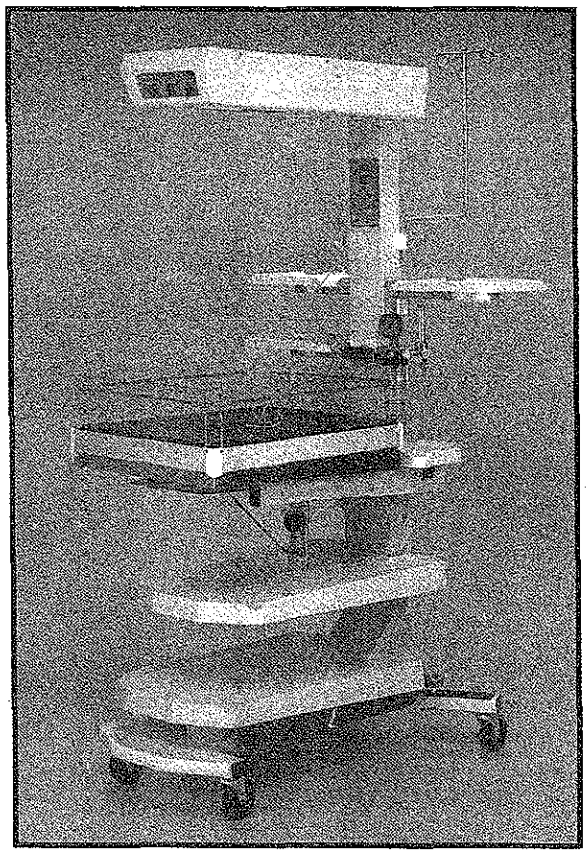
SERVICE MANUAL

Infant Intensive Care System
Infant Intensive Care System for the Delivery Room
Wall Mounted Infant Intensive Care System
Free Standing Infant Warmer
Wall Mounted Infant Warmer
From Hill-Rom Air-Shields



Product: Systems 7810/7820/7830/7840

For Parts Or Technical Assistance
USA (800) 445-3720 Canada (800) 267-2337
International: Contact your distributor.

man212

LIMITED

WARRANTY

The product being described in this manual is warranted against defects in materials or workmanship for one year from the date of shipment from Hill-Rom Air-Shields, Inc., Hatboro, with the following exceptions:

All consumable and disposable products are guaranteed to be free from defects upon shipment only.

Calibrations are considered normal maintenance and are not included in the 1 year warranty.*

During the warranty period any defective parts other than those listed above will be replaced at no charge to the customer. There will be no labor charge for replacing the parts within the continental U.S.

This warranty is rendered void and Hill-Rom Air-Shields, Inc. cannot be held liable for conditions resultant therefrom if:

1. Damage to the unit is incurred as a result of mishandling.
2. The customer fails to maintain the unit in a proper manner.
3. The customer uses any parts, accessories, or fittings not specified or sold by Hill-Rom Air-Shields, Inc.
4. Sale or service is performed by a non-certified service/dealer agency.

This warranty is in lieu of all other warranties, expressed or implied, and Hill-Rom Air-Shields, Inc. shall in no event be liable for incidental or consequential damages including loss of use, property damage, or personal injury resulting from breach of warranty.

*The Accreditation Manual for Hospitals requires each piece of equipment to be tested prior to initial use and at least annually thereafter. To comply with this standard, we recommend that you participate in our Preventive Maintenance Program during the warranty period. This service can be performed by certified technicians through our Product Service Group and authorized dealers.

SERVICE

For optimal performance, product service should be performed only by qualified service personnel. Technical Services representatives are located throughout the United States and Canada and are dispatched for required maintenance by calling USA (800) 445-3720 and Canada (800) 267-2337. Customers outside the U.S. and Canada should contact their local factory-authorized Hill-Rom Air-Shields' distributor for service.

Hill-Rom Air-Shields®
A HILLENBRAND INDUSTRY
330 Jacksonville Road, Hatboro, PA 19040

Cat. No. 78 991 25-14
A 1 2 3 4 5 6 7 8 9
E 1 2 3 4 5 6 7 8 9

Printed in U.S.A., 2/84

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PLEASE READ

Please check the A page for change information.

Since Hill-Rom Air-Shields, Inc. conducts a continuous product improvement program, circuit and component improvements are sometimes incorporated into equipment before they can be incorporated into the printed manuals. When this occurs, changed material is provided on separate sheets at the rear of the manual or under separate cover in the form of a change package. Changed material on each page of text is indicated by a vertical bar in the margin next to the changed material, as shown on the right.

THIS MANUAL CONTAINS PROPRIETARY INFORMATION. REPAIRS AND AUTHORIZED MODIFICATIONS SHOULD BE PERFORMED ONLY BY QUALIFIED SERVICE PERSONNEL TO MAINTAIN YOUR WARRANTY AND TO AVOID CREATING SAFETY HAZARDS. WE CANNOT ASSUME RESPONSIBILITY FOR ANY CONDITIONS AFFECTING THE PROPER OPERATION OF THIS EQUIPMENT WHICH MAY RESULT FROM UNAUTHORIZED REPAIR OR MODIFICATION.

NOTE ON REPLACEMENT PARTS

Some parts used in your equipment may be different than those which appear in the Parts List of this manual. This sometimes occurs due to difficulty in parts procurement, but does not alter the function of the equipment. Order the part listed in the Parts List. Refer to Section 6 of this Manual for a listing of recommended spare parts.

NOTE: ALSO SEE PAGE 2.

LIST OF AVAILABLE MODIFICATION KITS

ITEM	DESCRIPTION AND PURPOSE	PART NO.
1	IICS Corner Bracket Reinforcement Kit. Reinforces rear corner panel mountingbracket to reduce possibility of breakage	78 930 70
2	Power Module PCB1 Modification Kit. Modifies PCB1 in Series 00 Power Modules to provide adjustments and tighten tolerances.	78 930 72
3	Remote Alarm Retrofit Kit. Provides Controllers Models CM78–1 Series 02 and lower and CM78–2 Series 00 with ability to accept Remote Alarm Model AM78–1.	78 211 70
4	Audio Transducer Replacement Kit. Provides Controllers, Models CM78–1 Series 03 and lower; CM78–2 Series 01 and lower with a new type of audio transducer.	68 903 88
5	Power Cord Clamps. Provides strain relief for the Power Cords of the IICS.	78 932 20

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TABLE OF DEFINITIONS AND SYMBOLS

NOTE, IMPORTANT, CAUTION, AND WARNING

NOTE: A Note is inserted in text to point out procedures or conditions which may otherwise be misinterpreted or overlooked. A Note may also be used to clarify apparently contradictory or confusing situations.

IMPORTANT: Similar to a Note but used where greater emphasis is required.

CAUTION: A Caution is inserted in text to call attention to a procedure which, if not followed exactly, can lead to damage or destruction of the equipment.

WARNING: A Warning is inserted in text to call attention to dangerous or hazardous conditions inherent to the operation, cleaning, and maintenance of the equipment which may result in personal injury or death of the operator or patient.

(Change 8)

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SECTION 1
GENERAL INFORMATION

1.1 INTRODUCTION

This manual provides instructions for installation, maintenance, and repair of the following equipment:

- Infant Intensive Care System and Infant Intensive Care System for the Delivery Room System 7810
- Free Standing Infant Warmer System 7830
- Wall Mounted Infant Intensive Care System 7820
- Wall Mounted Infant Warmer System 7840

The manual is intended for use only by trained, qualified, service personnel. Instructions for the operator of the equipment are provided in a separate Operator's manual.

1.2 DESCRIPTION

1.2.1 INFANT INTENSIVE CARE SYSTEM AND INFANT INTENSIVE CARE SYSTEM FOR THE DELIVERY ROOM

The Infant Intensive Care System and Infant Intensive Care System for the Delivery Room (Figure 1.1) consists of a Cart and Bassinet Assembly, a Warmer Module, with a built–in Examination Light, and a Controller Assembly. The Infant Intensive Care System is also equipped with two removable instrument trays which are mounted on the Bassinet Support at the rear of the Bassinet.

- Cart and Bassinet – The Bassinet provides maximum visibility and access to the infant; the Cart provides a mounting for the Warmer Module and Bassinet.
- Warmer Module – The Warmer Module houses a heating element and an Examination Light for examination or special procedures.
- Controller – Provides either manual heat control or automatic skin temperature control.

1.2.2 FREE STANDING INFANT WARMER

The Free Standing Infant Warmer (Figure 1.2) is functionally identical to the Infant Intensive Care System except that it is not equipped with a Cart and Bassinet Assembly and the Warmer Module is fixed and cannot be swiveled from side to side. The mobile base is designed for use with a variety of "bassinets." The overall height of the base is only 9 cm (3–1/2 inches) and the base has a single center support leg to make it adaptable to the various styles of "bassinets." The Warmer Post can be assembled to provide one of three height positions to accommodate bassinets which have different mattress–to–floor heights while maintaining the specified distance between the lower surface of the Warmer Module and the mattress surface.

- Warmer Module – The Warmer Module houses a heating element and an Examination Light for examination or special procedures.
- Controller – Provides either manual heat control or automatic skin temperature control.

1.2.3 WALL MOUNTED INFANT INTENSIVE CARE SYSTEM

The Wall Mounted Infant Intensive Care System is functionally identical to the Infant Intensive Care System (Figure 1.1) except that it is not equipped with a Cart Assembly and is designed for mounting in a fixed position on a wall.

(Change 8)

- Bassinet – The Bassinet provides maximum visibility and access to the infant.
- Warmer Module – The Warmer Module houses a heating element and an Examination Light for examination or special procedures.
- Controller – Provides either manual heat control or automatic skin temperature control.

1.2.4 WALL MOUNTED INFANT WARMER

The Wall Mounted Infant Warmer is functionally identical to the Infant Intensive Care System (Figure 1.1) except that it is not equipped with a Cart/Bassinet Assembly and is designed for mounting in a fixed position on a wall.

- Warmer Module – The Warmer Module houses a heating element and an Examination Light for examination or special procedures.
- Controller – Provides either manual heat control or automatic skin temperature control.

1.3 ACCESSORIES

The accessories available for use with the Infant Intensive Care System and Wall Mounted Infant Intensive Care System are listed below and shown in Figure 1.1. Refer to Section 6 for part numbers.

NOTE: The Instrument Tray, Instrument Tray Support and the Pivot Brackets (illustrated in Figure 1.1) are Accessories om the Infant Intensive Care System for the Delivery Room. In addition, the Post Handle Illustrated in Figure 2.2 (Item 1) is an Accessory on the Infant Intensive Care System for the Delivery Room.

- Drawer Module Package
- I.V. Pole Package
- *Cart Shelf Package
- Monitor Shelf Package
- Oxygen Delivery System Package
- **Oxygen Delivery System with Auxiliary Oxygen Tank Provision Package
- Direct Magnification Radiography (DMR) Cassette Holder Package
- Twin–O–Vac™ Oxygen Suction Unit
- Flowmeter
- Phototherapy System (Not Shown)
- Phototherapy Rack (Not Shown)
- A.C. Receptacle Box Assembly (Not Shown)
- Remote Alarm, Model AM78–1

* Infant Intensive Care System only

** 220 VAC Infant Intensive Care System only

(Change 8)

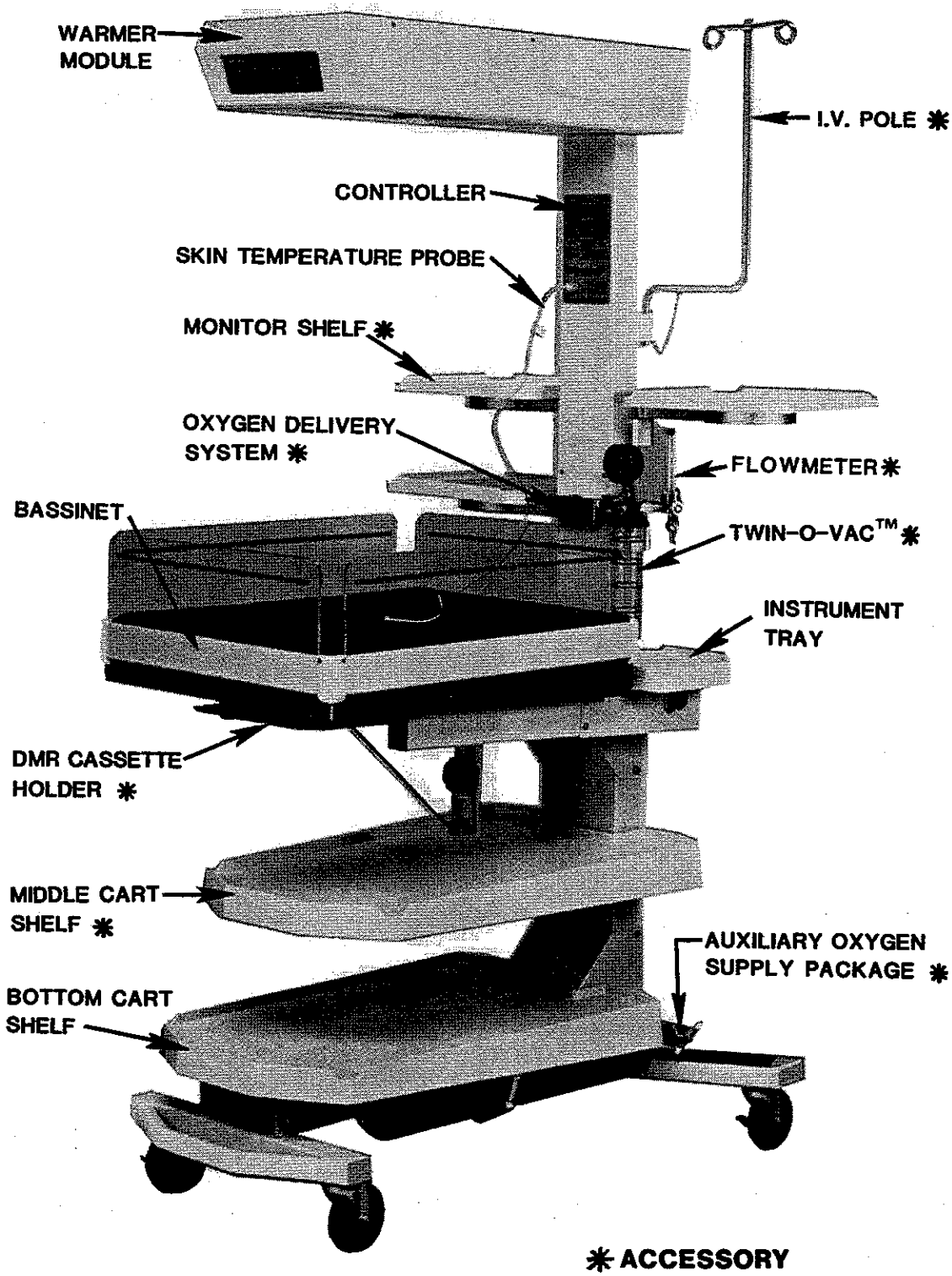


FIGURE 1.1 EQUIPMENT PROVIDED AND ACCESSORIES – INFANT INTENSIVE CARE SYSTEM

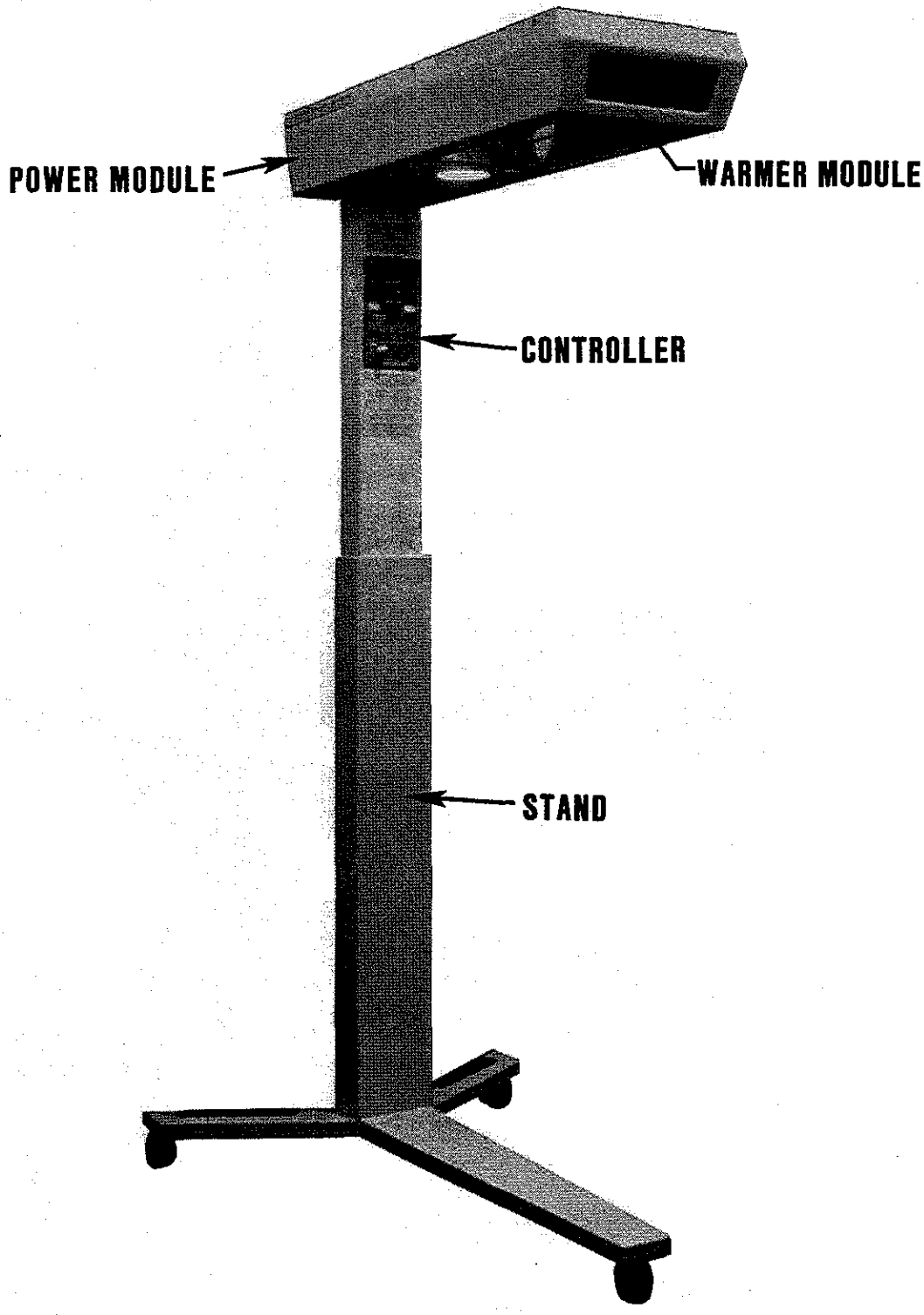


FIGURE 1.2 EQUIPMENT PROVIDED AND ACCESSORIES – FREE STANDING INFANT WARMER

RESUSCITATION PACKAGE (Includes):

- Flowmeter without O_2 Take-Off
- Twin-O-Vac™ Pediatric Suction Unit
- Resuscitation Module
- Air Delivery System, Yoke and Gauge
- O_2 Delivery System, Yoke and Gauge
- O_2/Air Tank Mounting Bracket

The accessories available for use with the Free Standing and Wall Mounted Infant Warmers are listed below. Refer to Section 6 for part numbers.

- Phototherapy System (not shown)
- Phototherapy Rack (not shown)

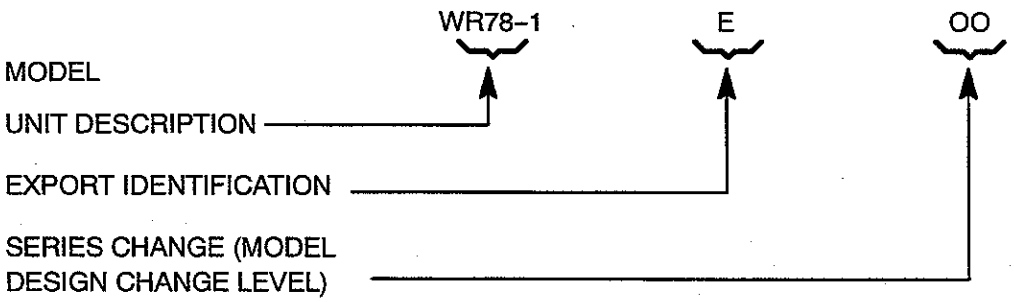
1.4 MODEL IDENTIFICATION/SERIES CHANGE

1.4.1 INFANT INTENSIVE CARE SYSTEM AND WALL MOUNTED INFANT WARMER

The Hill-Rom Air-Shields® Infant Intensive Care System has four data tags which list model identification and series number; the Wall Mounted Infant Warmer has three data tags. The locations of the data tags are as follows:

1. ***CART/BASSINET:** Located inside of main base channel; relates only to the Cart/Bassinet.
2. **WARMER MODULE:** Located inside of Power Module well; relates only to the Warmer Module; relates only to the Warmer Module.
3. **POWER MODULE:** Located on front panel of Power Module; relates only to the Power Module.
4. **CONTROLLER:** Located on side of Controller; relates only to the Controller.

The following example explains the content of the data tag:



*Infant Intensive Care System only.

(Change 13)

TABLE 1.1 SERIES CHANGE – CART/BASSINET, MODEL CB78–1 AND 1E

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLIES AFFECTED
00	**Original Design**	**None**
02	Color changed to Linear White and Gray.	Add 78 004 50CC. Add 78 155 70CC.
03	Color changed to Linear White and Gray.	Add 78 155 75CC.

TABLE 1.2 SERIES CHANGE – WARMER MODULE, MODEL WR78–1 AND 1E

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLIES AFFECTED
00	**Original Design**	**None**
01	Added Components to reinforce Pivot Bracket.	Pivot Bracket Assembly 78 265 25.
02	Changed Pivot Bracket Assembly.	Replace Pivot Bracket Assembly 78 265 25 with 78 265 28.
03	Special Order	78 950 38
04	Color changed to Linear White and Gray.	Add 78 265 75CC thru 77CC. Add 78 265 85CC thru 88CC. Add 78 265 95CC.

TABLE 1.3 SERIES CHANGE – POWER MODULE, MODEL PM78–1 AND 1E

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLIES AFFECTED
00	**Original Design**	**None**
01	Revise Power Module Assembly to allow interchanging of Controllers without need for recalibration of Controller.	Power Board PCB1 changed from 68 320 70 to 68 320 71. Changed VR1, VR2 and VR3 on Power Chassis.
02	Color changed to Linear White and Gray.	Add 78 306 70CC thru 72CC. Add 78 306 80CC thru 83CC. Add 78 306 90CC. Add 78 306 20CC thru 22CC.

(Change 8)

TABLE 1.4 SERIES CHANGE – CONTROLLER, MODEL CM78–1

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLIES AFFECTED
00	**Original Design**	**None**
01	Revise Controller Module Assembly. Add circuitry to prevent maximum heater power and enable alarms if SKIN/MANUAL switch (S1) malfunctions.	Circuit Boards PCB2 (78 316 70) and PCB3 (78 317 70).
02	Revise Controller Module Assembly. Add circuitry to activate audible alarm upon failure of SILENCE/RESET switch (S3) function.	Circuit Board PCB2 (78 316 70).
03	Revise Controller Module Assembly. Add circuitry to accommodate Remote Alarm, Model AM78–1.	PCB4 changed from 78 318 70 to 78 318 71.

TABLE 1.5 SERIES CHANGE – CONTROLLER, MODEL CM78–2

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLIES AFFECTED
00	**Original Design.**	**None.**
01	Revise Controller Module Assembly. Add circuitry to accommodate Remote Alarm, Model AM78–1.	PCB4 changed from 78 318 70 to 78 318 71.
02	Add Speaker to Motherboard Assembly.	PCB4 changed from 78 318 71 to 78 318 72.
03	Set Point deviation changed from ±0.5 °C to ± 1.0 °C.	PCB2 changed from 78 316 71 to 78 316 72.
05	Color changed to Linear White and Gray.	Add 78 305 80CC thru 78 83CC.

(Change 8)

1.4.2 FREE STANDING INFANT WARMER

The Hill-Rom Air-Shields® Free Standing Infant Warmer has three data tags which list model identification and series number. The locations of the data tags are as follows:

1. **WARMER MODULE:** Located inside of Power Module well; relates only to the Warmer Module.
2. **POWER MODULE:** Located on front panel of Power Module; relates only to the Power Module.
3. **CONTROLLER:** Located on side of Controller; relates only to the Controller.

TABLE 1.6 SERIES CHANGE – WARMER MODULE, MODEL WFS78-1 AND 1E

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLES AFFECTED
00	**Original Design**	**None**
01	Added Components to reinforce Mounting Bracket Assembly.	Mounting Bracket Assembly 78 270 15.
02	Changed Mounting Bracket Assembly.	Replaced Mounting Bracket Assembly 78 270 15 with 78 270 17.
03	Color changed to Linear White and Gray.	Add 78 270 75CC thru 77CC. Add 78 270 85CC thru 88CC. Add 78 270 95CC. Add 78 260 70CC.

TABLE 1.7 SERIES CHANGE – POWER MODULE, MODEL PM78-1 and 1E

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLIES AFFECTED
00	**Original Design**	**None**
01	Revise Power Module Assembly to allow interchanging of Controller without need for recalibration of Controller.	Power Board PCB1 changed from 68 320 70 to 68 320 71. Changed VR1, VR2 and VR3 on Power Chassis.
02	Color changed to Linear White and Gray.	Add 78 306 70CC thru 72CC. Add 78 306 80CC thru 83CC. Add 78 306 90CC. Add 78 306 20CC thru 22CC.

(Change 13)

TABLE 1.8 SERIES CHANGE – CONTROLLER, MODEL CM78–1

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLIES AFFECTED
00	**Original Design**	**None**
01	Revise Controller Module Assembly. Add circuitry to prevent maximum heater power and enable alarms if SKIN/MANUAL switch (S1) malfunctions.	Circuit Boards PCB2 (78 316 70) and PCB3 (78 317 70).
02	Revise Controller Module Assembly. Add circuitry to activate audible alarm upon failure of SILENCE/ RESET switch (S3) function.	Circuit Board PCB2 (78 316 70).
03	Revise Controller Module Assembly. Add circuitry to accommodate Remote Alarm, Model AM78–1.	PCB4 changed from 78 318 70 to 78 318 71.

TABLE 1.9 SERIES CHANGE – CONTROLLER, MODEL CM78–2

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLIES AFFECTED
00	**Original Design**	**None**
01	Revise Controller Module Assembly. Add circuitry to accommodate Remote Alarm, Model AM78–1.	PCB4 changed from 78 318 70 to 78 318 71.
02	Add Speaker to Motherboard Assembly.	PCB4 changed from 78 318 71 to 78 318 72.
03	Set Point deviation changed from ±0.5 °C to ± 1.0 °C.	PCB2 changed from 78 316 71 to 78 316 72.
05	Color changed to Linear White and Gray.	Add 78 305 80CC thru 78 83CC.

(Change 8)

1.4.3 WALL MOUNTED INFANT INTENSIVE CARE SYSTEM

The Hill-Rom Air-Shields® Wall Mounted Infant Intensive Care System has three data tags which list model identification and series numbers. The location of the data tags are as follows:

1. **WARMER MODULE:** Located inside of Power Module well; relates only to the Warmer Module.
2. **POWER MODULE:** Located on front panel of Power Module; relates only to the Power Module.
3. **CONTROLLER:** Located on side of Controller; relates only to the Controller.

TABLE 1.10 SERIES CHANGE - WARMER MODULE, MODEL WR78-1 and 1E

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLIES AFFECTED
00	**Original Design.**	**None.**
01	Added components to reinforce Pivot Bracket.	Pivot Bracket Assembly 78 265 25.
02	Changed Pivot Bracket Assembly.	Replaced Pivot Bracket Assembly 78 265 25 with 78 265 28.
04	Color changed to Linear White and Gray.	Add 78 265 75CC thru 77CC. Add 78 265 85CC thru 88CC. Add 78 265 95CC.

TABLE 1.11 SERIES CHANGE - POWER MODULE, MODEL PM78-1 and 1E

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLIES AFFECTED
00	**Original Design.**	**None.**
01	Revise Power Module Assembly to allow interchanging of Controllers without need for recalibration of Controller.	Power Board PCB1 changed from 68 320 70 to 68 320 71. Changed VR1, VR2 and VR3 on Power Chassis.
02	Color changed to Linear White and Gray.	Add 78 306 70CC thru 72CC. Add 78 306 80CC thru 83CC. Add 78 306 90CC. Add 78 306 20CC thru 22CC.

(Change 13)

TABLE 1.12 SERIES CHANGE – CONTROLLER, MODEL CM78–1

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLIES AFFECTED
00	**Original Design.**	**None.**
01	Revise Controller Module Assembly. Add circuitry to prevent maximum heater power and enable alarms if SKIN/MANUAL switch (S1) malfunctions.	Circuit Boards PCB2 (78 316 70) and PCB3 (78 317 70).
02	Revise Controller Module Assembly. Add circuitry to activate audible alarm upon failure of SILENCE/ RESET switch (S3) function.	Circuit Board PCB2 (78 316 70).
03	Revise Controller Module Assembly. Add circuitry to accommodate Remote Alarm, Model AM78–1.	PCB4 changed from 78 318 70 to 78 318 71.

TABLE 1.13 SERIES CHANGE – CONTROLLER MODULE, MODEL CM78–2

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLIES AFFECTED
00	**Original Design.**	**None.**
01	Revise Controller Module Assembly. Add circuitry to accommodate Remote Alarm, Model AM78–1.	PCB4 changed from 78 318 70 to 78 318 71.
02	Add Speaker to Motherboard Assembly.	PCB4 changed from 78 318 71 to 78 318 72.
03	Set Point deviation changed from ±0.5 °C to ± 1.0 °C.	PCB2 changed from 78 316 71 to 78 316 72.
05	Color changed to Linear White and Gray.	Add 78 305 80CC thru 78 83CC.

(Change 8)

TABLE 1.14 SERIES CHANGE – WARMER MODULE (90° PIVOT), MODEL WRP78–1 AND 1E

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLIES AFFECTED
00	**Original Design**	**None**
01	Color changed to Linear White and Gray.	Add 78 267 70CC thru 72CC. Add 78 267 80CC thru 83CC. Add 78 267 90CC.

TABLE 1.15 SERIES CHANGE– RESUSCITATION MODULES MODELS RMC78–1 AND RMD78–1

SERIES NO.	DESCRIPTION	ITEMS/ASSEMBLIES AFFECTED
RMC78–1		
00	**Original Design**	**None**
01	Changed internal piping from PVC to copper.	78 455 75 thru 78
02	Color changed to Linear White and Gray.	78 455 75CC thru 78CC
03	Add additional Part Numbers.	78 467 50CC, 51CC, 70 CC, and 71CC
04	Redesign Module Panels to fit VHA.	78 467 43CC and 44CC
RMD78–1		
00	**Original Design**	**None**
01	Redesign Module Panels to fit VHA.	78 467 41CC and 42CC

(Change 12)

1.5 SYSTEM NUMBER/SYSTEM SERIAL NUMBER LABEL LOCATIONS

- **Infant Intensive Care System and Infant Intensive Care System for the Deleivery Room System 7810**

  The label containing the System Number and System Serial Number is located on the front of the Cart Assembly directly behind the Cart Shelf.

- **Free Standing Infant Warmer System 7830**

  The label containing the System Number and System Serial Number is located on the top front of the Lower Post.

- **Wall Mounted Infant Intensive Care System 7820**

  The label containing the System Number and System Serial Number is located on front top of the Wall Mounting Bracket.

- **Wall Mounted Infant Warmer System 7840**

  The label containing the System Number and System Serial Number is located on the front of the Wall Mounting Bracket.

(Change 12)

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(Change 12)

SECTION 2
INSTALLATION

2.1 UNPACKING

When removing the equipment from the cartons, use care not to scratch or otherwise damage unprotected surfaces; remove all packing materials.

2.1.1 INFANT INTENSIVE CARE SYSTEM AND INFANT INTENSIVE CARE SYSTEM FOR THE DELIVERY ROOM

The Infant Intensive Care System is shipped in a single carton containing the following assemblies which are packaged separately:

- Warmer Module Assembly
- Bassinet Assembly
- Warmer Module Post Assembly
- Cart and Bassinet Support Assemblies
- Cart Shelf Assembly
- Controller Assembly and Power Module

2.1.2 FREE STANDING INFANT WARMER

The Free Standing Infant Warmer is shipped in a single carton containing the following assemblies which are packaged separately:

- Warmer Module Assembly
- Upper and Lower Mounting Posts
- Base Assembly
- Controller Assembly and Power Module

2.1.3 WALL MOUNTED INFANT INTENSIVE CARE SYSTEM

The Wall Mounted Infant Intensive Care System is shipped in a single carton containing the following assemblies which are packaged separately:

- Warmer Module Assembly
- Bassinet Assembly
- Mounting Post
- Mounting Bracket
- Bassinet Support Assembly
- Controller Assembly and Power Module

(Change 8)

2.1.4 WALL MOUNTED INFANT WARMER

The Wall Mounted Infant Warmer is shipped in a single carton containing the following assemblies which are packaged separately:

- Warmer Module Assembly
- Mounting Post
- Mounting Bracket
- Controller Assembly and Power Module

2.2 ASSEMBLY – INFANT INTENSIVE CARE SYSTEM AND INFANT INTENSIVE CARE SYSTEM FOR THE DELIVERY ROOM

NOTE: The Instrument Tray Support Frame (Item 2 Figure 2.1) is an accessory to the Infant Intensive Care System for the Delivery Room.

This paragraph provides instructions for assembling the Infant Intensive Care System; no special tools are required.

2.2.1 INSTALLATION OF BASSINET SUPPORT

It should be noted that the overall height of the fully assembled Infant Intensive Care System and the height of the Bassinet at mattress level are determined by the position of the Bassinet Support Assembly and the Upper Column.

The Cart and Bassinet Support Assemblies are shipped preassembled, with the Bassinet Support installed in the high position. This provides a maximum overall unit height of 79 inches (200.7 cm) when the unit is fully assembled; the height of the Bassinet, at mattress level, will be 40–1/2 inches (102 cm) from the floor.

If your requirements dictate, the overall height of the Infant Intensive Care System may be lowered to 74–3/4 inches (189.9 cm) by installing the Bassinet Mounting Post in the **low position**. When installed in the low position, the height of the Bassinet, at mattress level, will be 36–1/4 inches (92 cm) from the floor.

Regardless of which position is selected (high, medium or low), the distance between the mattress and the Warmer Module will remain constant when the Infant Intensive Care System is fully assembled.

INSTALLATION IN THE MEDIUM POSITION

A. Insert the two Guide Pins (2) and (3) into the unit (Refer to Figure 2.1).

B. Remove the Cap Screws and Washers (5) from the Post.

IMPORTANT: Remove these bolts with care. They have lock washers hidden in the channel. Take care not to lose the lock washers in the channel.

C. Remove the Plastic Plugs (7) from the lower Medium Position Mounting holes. Remove the Lower Bolts and Washers (6) from the unit.

D. Raise the Bassinet Support as illustrated and then lower it down the back of the Post until the Guide Pins can be inserted into the lower slots.

E. Install the Top Cap Screws and Washers (5) and Lower Cap Screws and Washers (6). Take care not to lose the lock washers on the upper bolts in the channel.

F. Remove the Guide Pins (2) and (3) from the unit.

(Change 13)

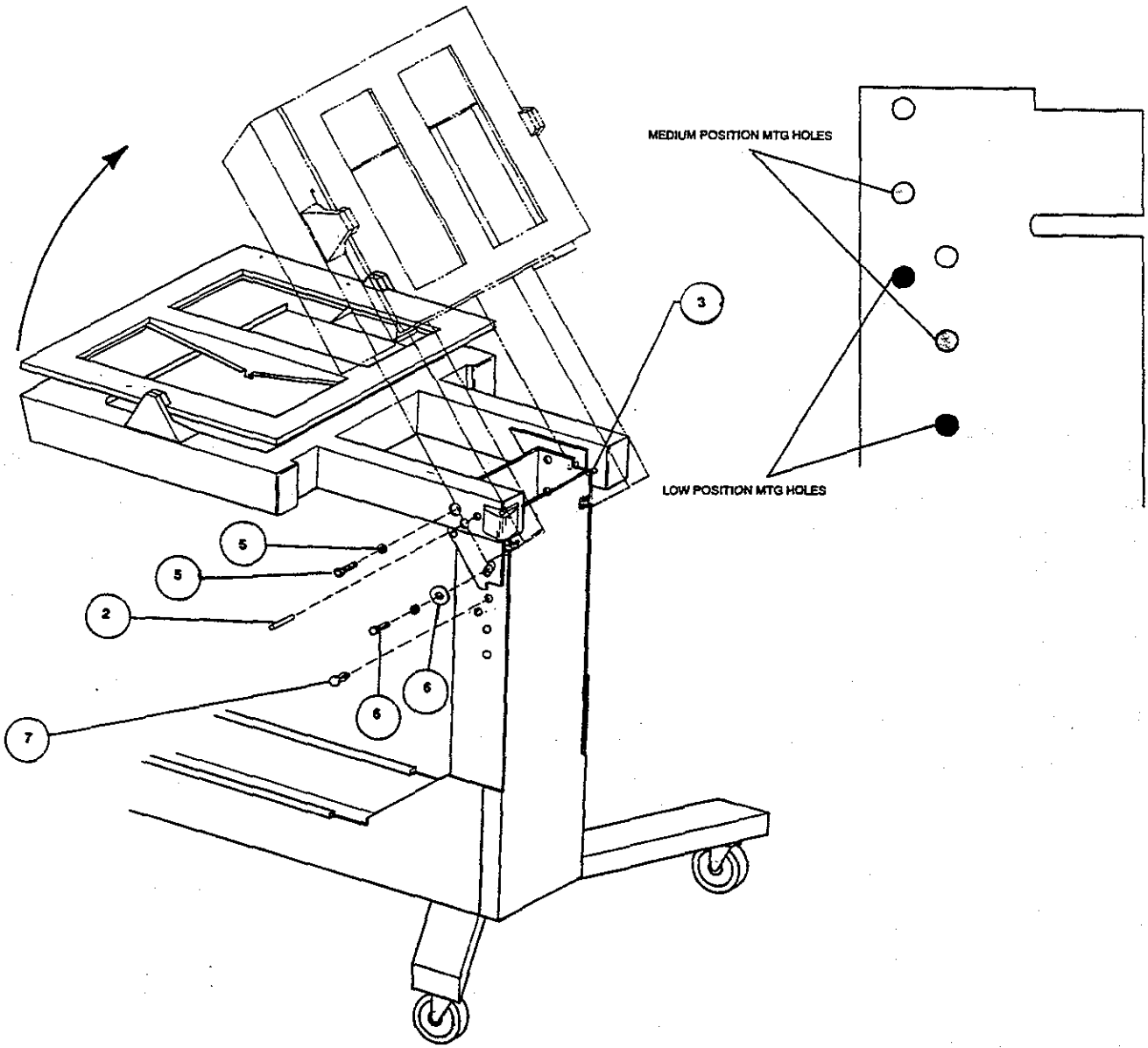


FIGURE 2.1 INSTALLATION OF BASSINET SUPPORT IN THE MEDIUM OR LOW POSITION

(Change 13)

INSTALLATION IN THE LOW POSITION

A. Remove the Cap Screws and Washers (5) from the Post.

IMPORTANT: Remove these bolts with care. They have lock washers hidden in the channel. Take care not to lose the lock washers in the channel.

B. Remove the Plastic Plugs (7) from the lower medium and Low Position Mounting Holes. Remove the Lower Cap Screws and Washers (6) from the unit.

C. Raise the Bassinet Support as illustrated and then lower it down the back of the Post until it aligns with the lowest set of mounting holes.

NOTE: Since the Guide Pins (2 and 3) cannot be used, it is recommended that two people perform Step C.

D. Install the Top Cap Screws and Washers (5) and Lower Cap Screws and Washers (6). Take care not to lose the lock washers on the upper bolts in the channel.

2.2.2 INSTALLATION OF MOUNTING POST

To install the Mounting Post on the Cart Assembly, refer to Figure 2.2 and proceed as follows:

IMPORTANT: If the Bassinet Support is installed in the high position (as shipped), install the Mounting Post in the high position as described in step A. If the Bassinet Support is installed in the medium or low position, install the Mounting Post as described in steps B or C.

A. INSTALL THE MOUNTING POST IN THE HIGH POSITION as follows:

1. Place a 6-32 x 1-inch Screw into the High Position Clearance Hole on the Front of the Cart Assembly. Insert the bottom end of the Mounting Post (4) into the opening at the top of the vertical section (5) of the Cart Assembly.
2. Slowly lower the Mounting Post until the bottom edge of the slot rests on the 6-32 screw.
3. Align the four mounting holes (9) in the post with the four mounting holes in the Cart and secure in place by installing the four 1/4"-20 x 1/2" screws (10) and 1/4" lock washers (11) supplied; tighten securely.
4. Install the 2-1/4-inch Trim Strip, the 2-inch Trim Strip and the Long Trim Strip on the rear of the Post. Place the small Strips at the bottom of the Post.
5. Remove the 6-32 screw.

B. INSTALL THE MOUNTING POST IN THE MEDIUM POSITION as follows:

1. Place a 6-32 x 1-inch Screw provided into the Medium Position Clearance Hole on the Front of the Cart Assembly. Insert the bottom end of the Mounting Post (4) into the opening at the top of the vertical section (5) of the Cart Assembly.
2. Slowly lower the Mounting Post until the bottom edge of the slot rests on the 6-32 screw.
3. Align the four mounting holes (9) in the post with the four mounting holes in the Cart and secure in place by installing the four 1/4"-20 x 1/2" screws (10) and 1/4" lock washers (11) supplied; tighten securely.
4. Install the 2-inch Trim Strip and the Long Trim Strip on the rear of the Post. Place the small Strip at the bottom of the Post.
5. Remove the 6-32 screw.

C. INSTALL THE MOUNTING POST IN THE LOW POSITION as follows:

1. Place a 6-32 x 1-inch screw provided into the Low Position Clearance Hole on the Front of the Cart Assembly. Insert the bottom end of the Mounting Post (4) into the opening at the top of the vertical section (5) of the Cart Assembly.

(Change 13)

2. Slowly lower the Mounting Post until the bottom edge of the slot rests on the 6-32 screw.
3. Align the four mounting holes (9) in the post with the four mounting holes in the Cart and secure in place by installing the four 1/4"-20 x 1/2" screws (10) and 1/4" lock washers (11) supplied; tighten securely.
4. Install the Long Trim Strip on the rear of the Post.
5. Remove the 6-32 screw.

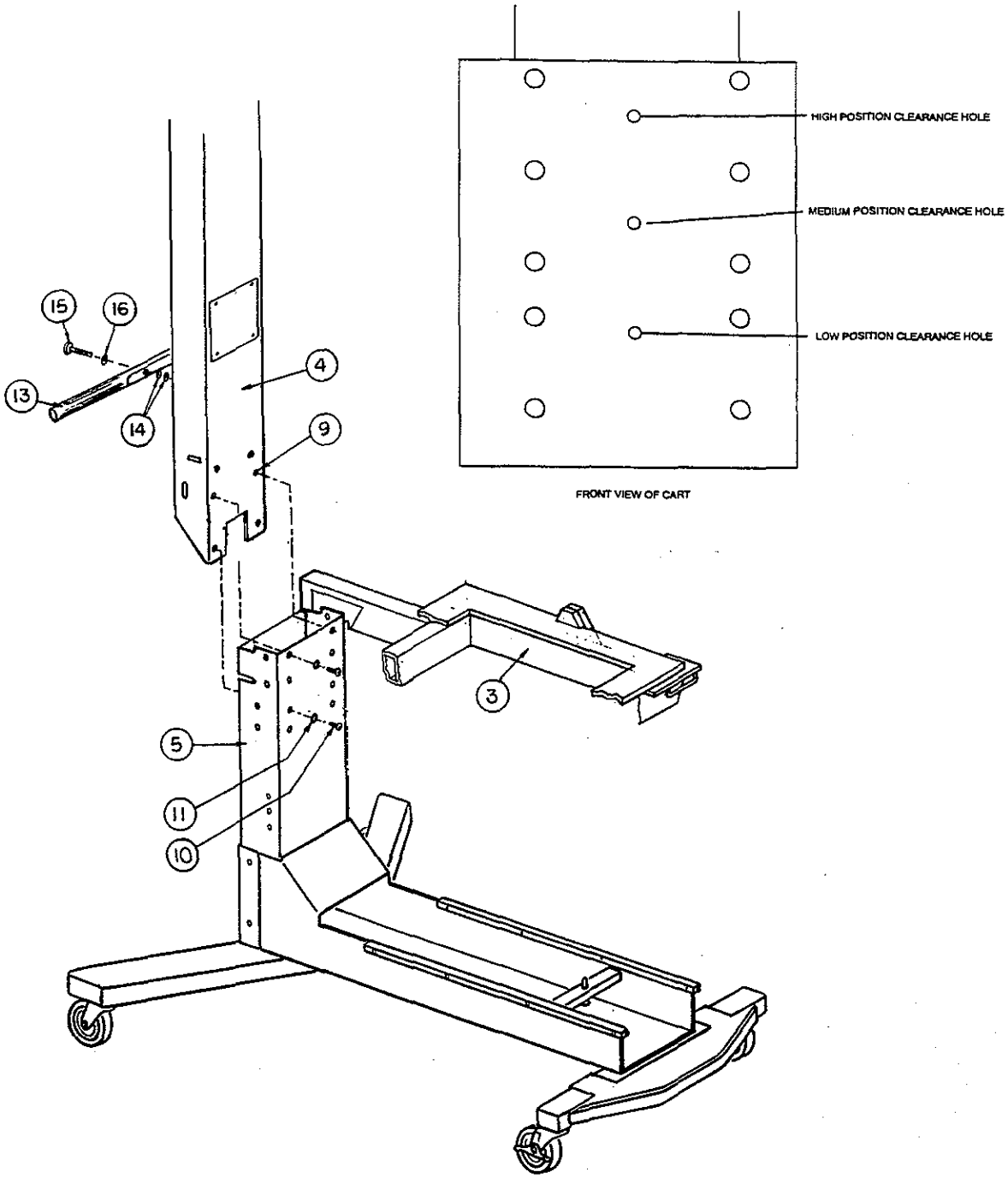


FIGURE 2.2 INSTALLATION OF MOUNTING POST
(Change 13)

2.2.3 INSTALLATION OF POWER MODULE

NOTE: If the Power Module has not been installed in the Warmer Module, it will be necessary to install the Power Module before performing the Warmer Module installation procedure given in paragraph 2.2.4 of this manual. If the Power Module has been factory installed, disregard this procedure.

1. **REFER TO Figure 2.3.** Position the Power Module (1) in the Warmer Module (2) as shown, and connect the interconnecting ribbon cable (3) to the connector (4). Make sure that the key on the plug is inserted into the slot on the connector and is firmly seated.

2. **CAREFULLY SLIDE THE POWER MODULE** into the Warmer Module until the plug on the rear of the module mates with the connector on the Warmer Module and is firmly seated.

   CAUTION: Use care to prevent damage to the interconnecting ribbon cable when installing the Power Module.

3. **INSTALL THE TWO MOUNTING SCREWS** (5) and flat washers (6); tighten securely.

(Change 13)

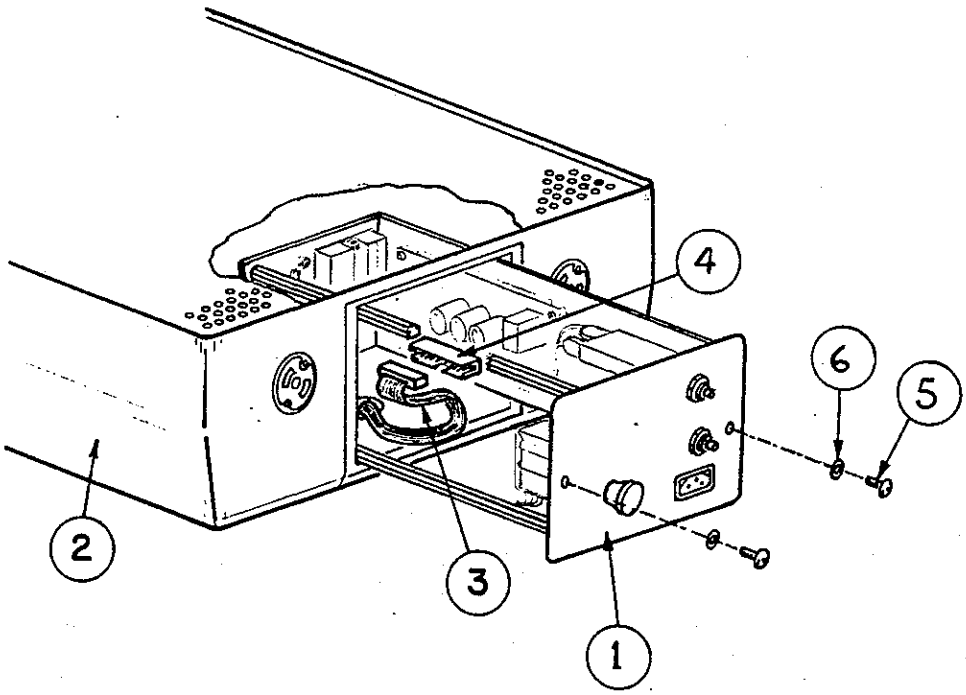


FIGURE 2.3 INSTALLATION OF POWER MODULE

2.2.4 INSTALLATION OF WARMER MODULE AND CONTROLLER

To install the Warmer Module on the Mounting Post, refer to Figure 2.4 and proceed as follows:

1. **LOOSELY THREAD TWO #10–32 x 5/8 SCREWS (1)** and #10 lock washers (2) supplied into the two topmost holes in the Warmer Module mounting bracket (3).

2. **RAISE THE WARMER MODULE (4)** above the open end of the Mounting Post (5) and insert the interconnecting ribbon cable (6) into the open end of the post.

   CAUTION: Use care to prevent damage to the interconnecting ribbon cable when installing the Warmer Module.

3. **SLOWLY LOWER THE WARMER MODULE MOUNTING BRACKET** into the open end of the Mounting Post until the screws (1) installed in step 1 are firmly seated in the two mounting slots (7) at the top of the post.

   IMPORTANT: Make sure that the lock washers (2) are directly under the screw heads and are between the screw heads and the outer surface of the Mounting Post.

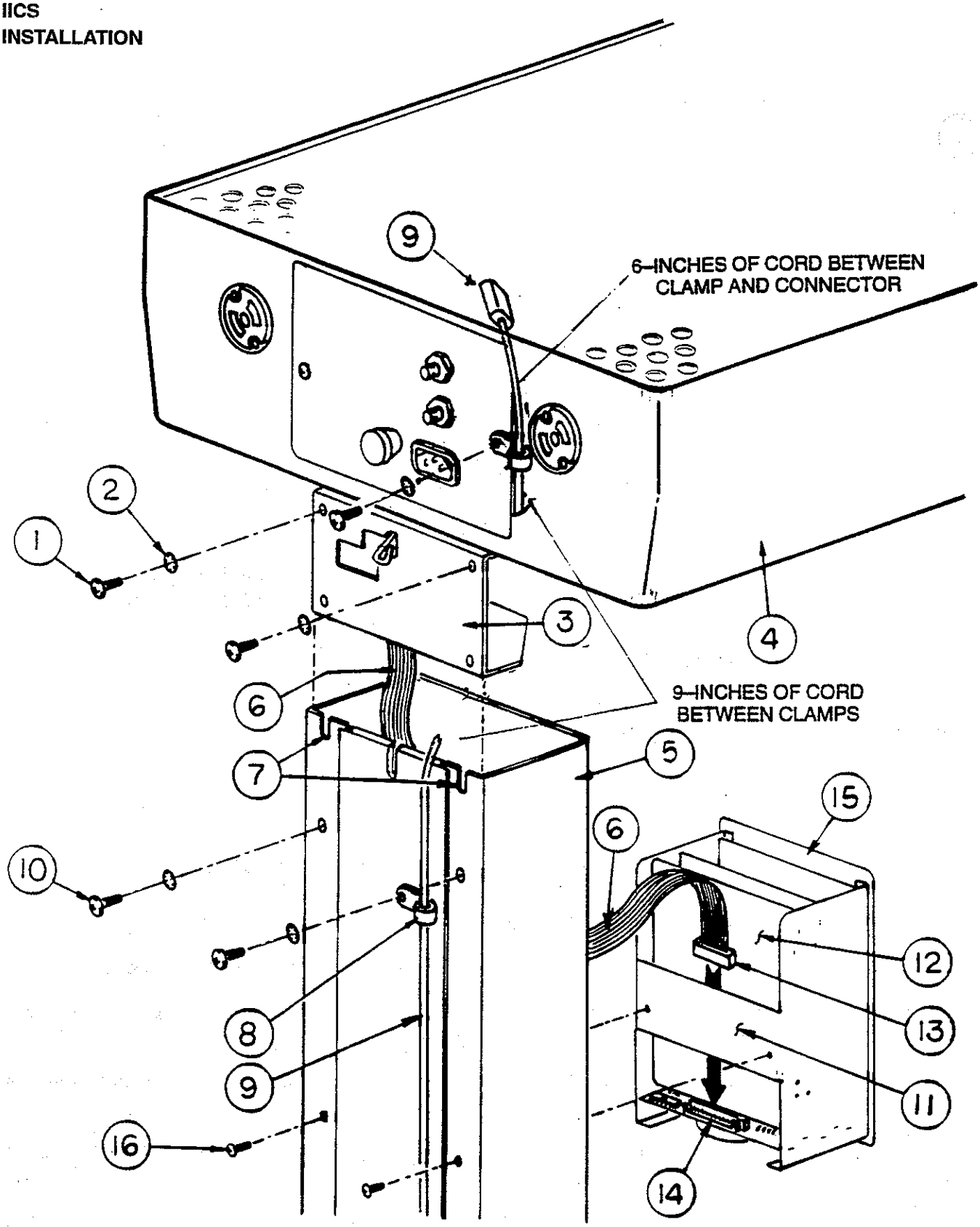


FIGURE 2.4 INSTALLATION OF WARMER MODULE AND CONTROLLER

(Change 10)

4. **INSTALL THE POWER CORD CLAMP** (8) on the Power Cord (9); position the clamp **15–inches** from the end of the female Power Cord Connector. Refer to Figure 2.4.Position the second clamp **6–inches** from the end of the female Power Cord.
5. **SECURE ONE CORD CLAMP** (8) to the Mounting Post when installing (figure 2.3) the two lowermost Warmer Module mounting screws (10). Secure the second clamp using the Power Module mounting screw. Tighten all screws securely.

   IMPORTANT: The 15–inch (9–inches plus 6–inches) service loop identified in Step 4 and the secure tightening of the associated mounting fastener identified in Step 5. are necessary to ensure the proper power cable strain relief during Warmer Module swivel procedures. Failure to perform these installation steps correctly can result in deformation and/or disengagement of the ac power connectors with resultant heat damage to these components.

   NOTE: Raise the front of the Warmer Module slightly when tightening the topmost mounting screws. This will relieve the pressure on the screws and ease the tightening procedure.
6. **CAREFULLY THREAD THE INTERCONNECTING CABLE (6)** out through the Controller opening at the front of the Warmer Module mounting post.

CAUTION:

- **When connecting the interconnecting cable to the Controller, make sure that the cable is not twisted or crimped.**
- **Make sure that the interconnecting cable is dressed down between the circuit board and the back cross–member of the Controller chassis.**
- **When connecting the interconnecting cable to the Controller, make sure that the key on the cable plug is inserted into the slot on the connector.**

7. **CAREFULLY THREAD THE INTERCONNECTING CABLE (6)** down between the back cross–member (11) and the circuit board (12) on the Controller and connect the cable plug (13) to the connector (14). Make sure that the key on the plug is inserted into the slot on the connector and is firmly seated.

   CAUTION: When installing the Controller in the Mounting Post, use care not to twist, crimp, pinch, or otherwise damage the interconnecting cable.

8. **CAREFULLY DRESS THE INTERCONNECTING CABLE** back into the opening in the Mounting Post, insert the Controller (15) into the opening, and install the Controller mounting screws (16) and lock washers (10).

2.2.5 INSTALLATION OF BASSINET

To install the Bassinet on the Bassinet Support, refer to Figure 2.5 and proceed as follows:

1. **REMOVE THE MATTRESS AND THE X–RAY TRAY** from the Bassinet.
2. **LIFT THE BASSINET FRAME ASSEMBLY (1)** and, standing at the front of the Cart Assembly, insert the left–hand end of the Bassinet Elevator Rod (2) into the corresponding Tilt Adjusting Bracket (3), then insert the right–hand end of the rod into the right–hand Tilt Adjusting Bracket.
3. **LOWER THE FRONT OF THE BASSINET FRAME ASSEMBLY** until the two Pivot Release Mechanisms (4) are in place over the Pivot Blocks (5) on the Bassinet Support (6).
4. **ACTUATE THE PIVOT RELEASE MECHANISMS** (Detail A) to allow the Bassinet Frame Assembly to seat in the Pivot Blocks; it may be necessary to gently move the frame back and forth to seat the frame in the pivot blocks. Release the Pivot Release Mechanisms to lock the frame in place.

(Change 10)

5. **REINSTALL THE X-RAY TRAY AND THE MATTRESS** on the Bassinet Frame Assembly.

6. **INSTALL THE SIDE AND END PANELS** on the Bassinet.

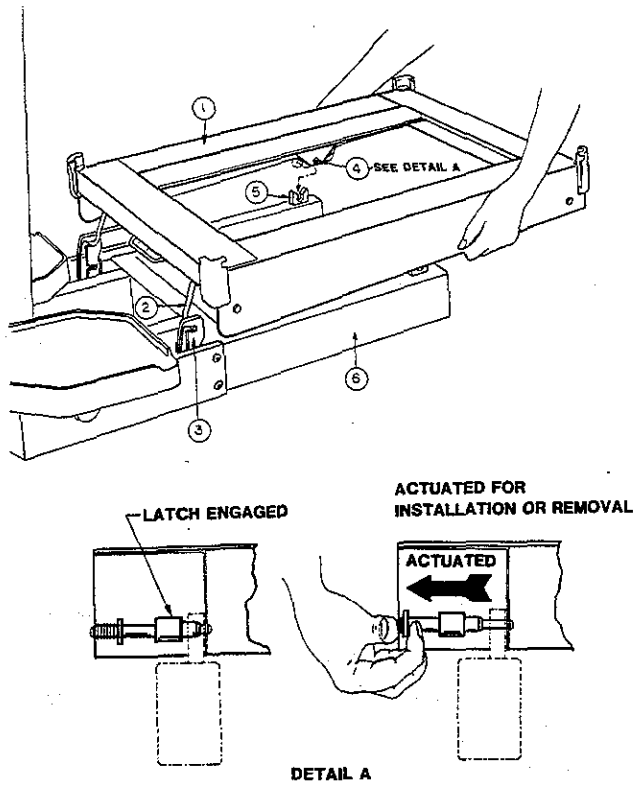


FIGURE 2.5 INSTALLATION OF BASSINET

2.2.6 INSTALLATION OF CART SHELF AND INSTRUMENT TRAYS

NOTE: The Instrument Trays and Instrument Tray Support Frame (Figure 2.6 Items 5 and 7) are accessories to the Infant Intensive Care System for the Delivery Room.

To install the Cart Shelf and Instrument Trays, refer to Figure 2.6 and proceed as follows:

1. **ALIGN THE TRACKING GROOVES IN THE CART SHELF (1)** with the tracks (2) on the Cart and slide the Shelf toward the rear of the Cart until the latching pin engages the locking groove in the underside of the shelf. Check that the shelf is positively locked.

2. **LOOSELY THREAD THE TWO RETAINING KNOBS** (4) into the Instrument Tray Support Frame (5).

3. **INSERT THE LOCKING TONGUE (6) ON THE INSTRUMENT TRAY** (7) into the slot (8) on the Mounting Post, slip the mounting bracket on the tray over the retaining knob and tighten the knob securely.

(Change 8)

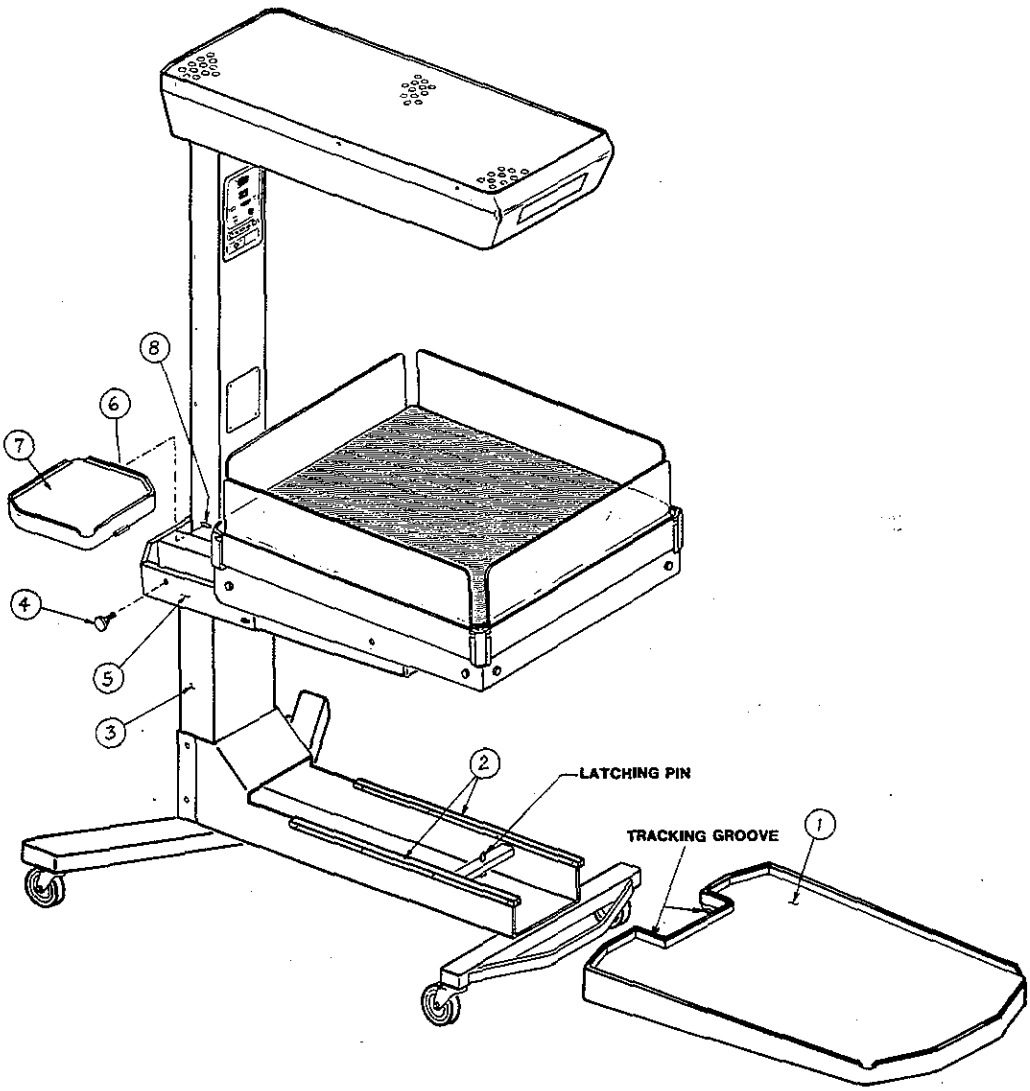


FIGURE 2.6 INSTALLATION OF CART SHELF AND INSTRUMENT TRAYS

2.3 ASSEMBLY – FREE STANDING INFANT WARMER

Instructions for assembling the Free Standing Infant Warmer are provided below; no special tools are required.

It should be noted that the Warmer Post can be assembled to provide one of three height positions to accommodate bassinets which have different mattress–to–floor heights while maintaining the specified distance between the lower surface of the Warmer Module and the mattress surface.

2.3.1 ASSEMBLY OF UPPER AND LOWER MOUNTING POSTS AND BASE ASSEMBLY

1. **REFER TO FIGURE 2.7** and mount the Lower Mounting Post on the Base Assembly using the four mounting bolts and lock washers supplied.

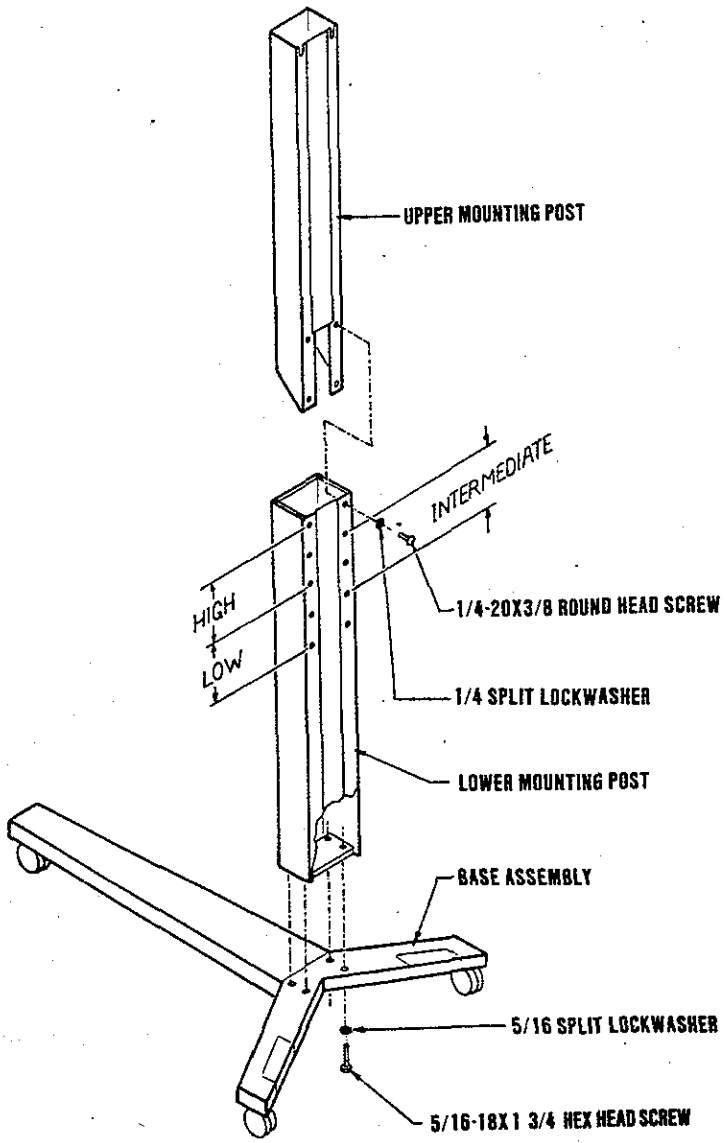


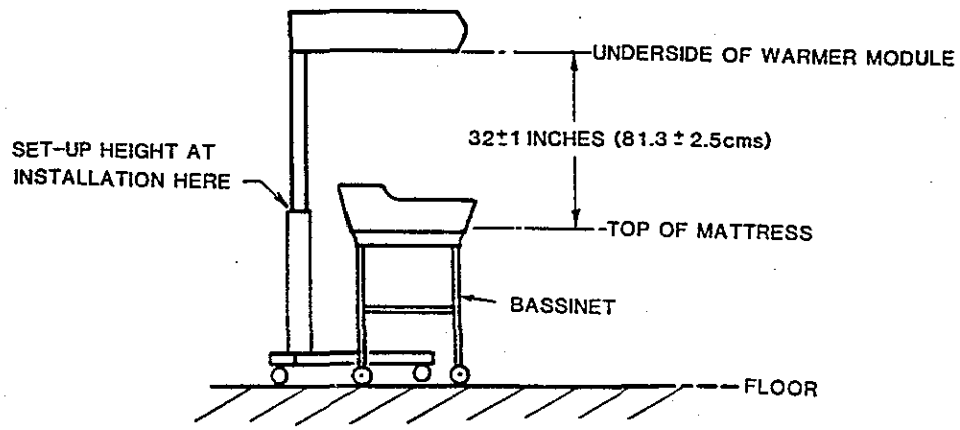
FIGURE 2.7 ASSEMBLY OF UPPER AND LOWER MOUNTING POSTS AND BASE ASSEMBLY

IMPORTANT:

- The Hill-Rom Air-Shields® Free-Standing Infant Warmer can be used with a variety of bassinets which could have different mattress-to-floor heights (infant-to-radiant source distances). It is imperative that the distance between underside of the warmer module and the top of the bassinet mattress be 32 ± 1 inches (81.3 ± 2.5 cm). To accommodate a variety of bassinet mattress heights, the Infant Warmer can be set-up in any of three available heights as determined by the position of the Upper Mounting Post.
- Before installing the Upper Mounting Post (step 2), it is important to determine the mattress-to-floor height of the bassinet(s) in use. This dimension will be used to determine which position (High, Intermediate, or Low) should be selected when installing the Upper Mounting Post.

2. **REFER TO FIGURE 2.7** and mount the Upper Mounting Post on the Lower Mounting Post using the four mounting screws and lock washers supplied. Refer to the following chart to select the position for installation.

MATTRESS-TO-FLOOR HEIGHT	UPPER MOUNTING POST POSITION
32 to 34 inches (81 to 86.4 cm)	Install in LOW position.
35 to 37 inches (89 to 94 cm)	Install in INTERMEDIATE position.
38 to 40 inches (96.5 to 101.6 cm)	Install in HIGH position.



2.3.2 INSTALLATION OF POWER MODULE

NOTE: If the Power Module has not been installed in the Warmer Module, it will be necessary to install the Power Module before performing the Warmer Module installation procedure given in paragraph 2.3.3 of this manual. If the Power Module has been factory installed, disregard this procedure.

(Change 13)

1. **REFER TO FIGURE 2.8.** Position the Power Module (1) in the Warmer Module (2) as shown, and connect the interconnecting ribbon cable (3) to the connector (4). Make sure that the key on the plug is inserted into the slot on the connector and is firmly seated.

   CAUTION: Use care to prevent damage to the interconnecting ribbon cable when installing the Power Module.

2. **CAREFULLY SLIDE THE POWER MODULE** into the Warmer Module until the plug on the rear of the module mates with the connector on the Warmer Module and is firmly seated.

3. **INSTALL THE TWO MOUNTING SCREWS** (5) and flat washers (6); tighten securely.

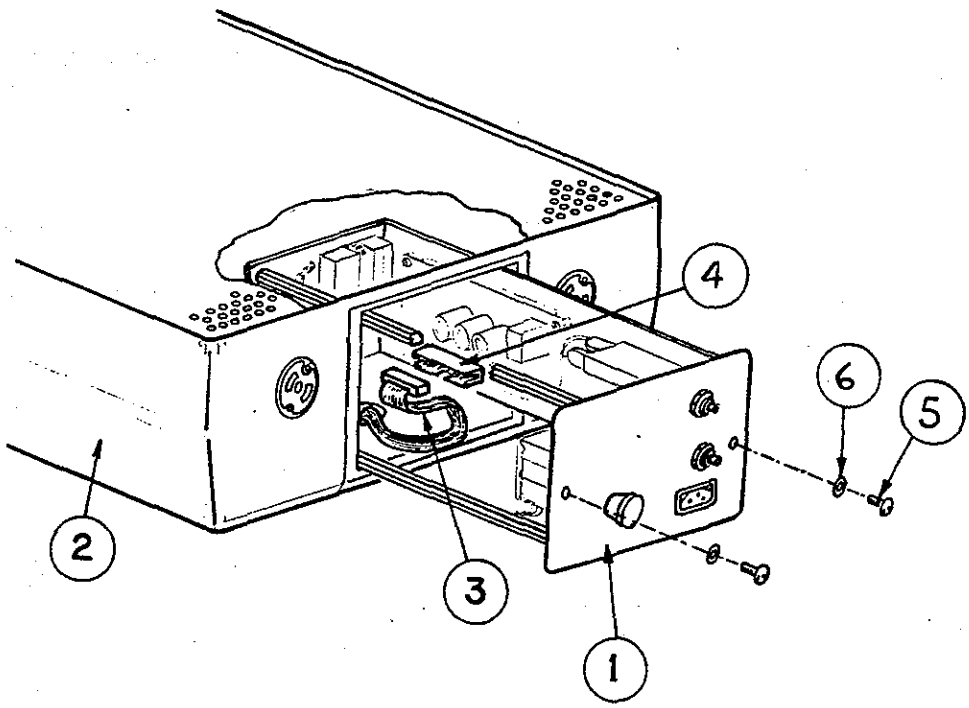


FIGURE 2.8 INSTALLATION OF POWER MODULE

2.3.3 INSTALLATION OF WARMER MODULE AND CONTROLLER

To install the Warmer Module on the Mounting Post, refer to Figure 2.9 and proceed as follows:

1. **RAISE THE WARMER MODULE (4)** above the open end of the Mounting Post (5) and insert the interconnecting ribbon cable (6) into the open end of the post.

   CAUTION: Use care to prevent damage to the interconnecting ribbon cable when installing the Warmer Module.

(Change 8)

PART	PARTS LIST	PART NO
Screw, 10 – 32 x 1/2"		99 042 01
No. 10 Lock Washer		99 123 94
Cable Clamp, .31 ID		17 732 42
Screw, 6 – 32 x 3/8"		99 023 31
No. 6 Lock Washer		99 122 16

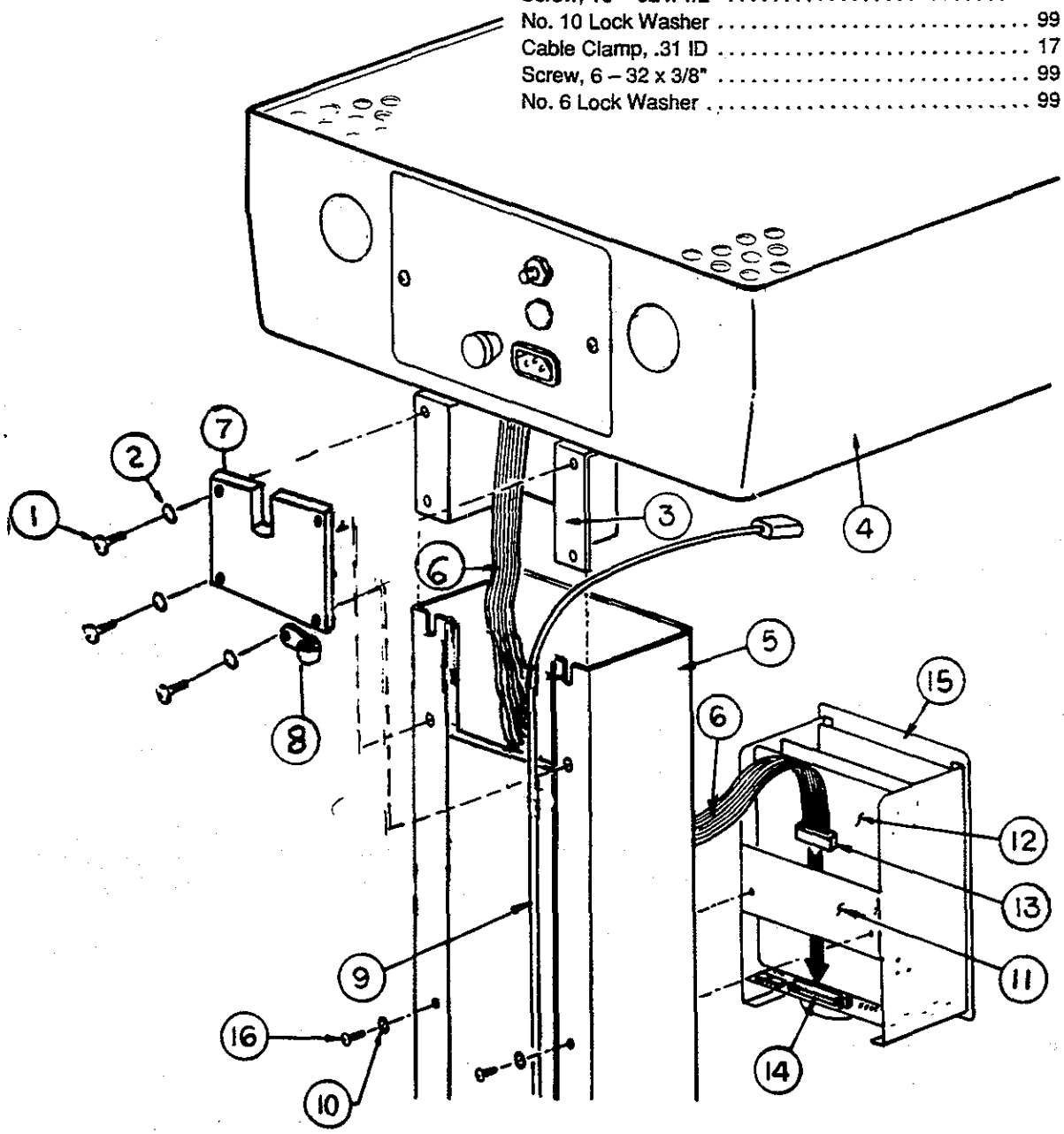


FIGURE 2.9 INSTALLATION OF WARMER MODULE AND CONTROLLER

(Change 8)

2. **SLOWLY LOWER THE WARMER MODULE** mounting flange into the open end of the Mounting Post. Refer to the illustration and secure the reinforcing plate (7) and the Warmer Module using the 10 – 32 x 1/2" screws (1) and the No. 10 lock washers (2) in the upper most holes.

   NOTE: Raise the front of the Warmer Module slightly when tightening the top–most mounting screws. This will relieve the pressure on the screws and ease the tightening procedure.

   IMPORTANT: Make sure that the lock washers (2) are directly under the screw heads and are between the screw heads and the outer surface of the Mounting Post.

3. **INSTALL THE POWER CORD CLAMP** (8) on the Power Cord (9); position the clamp 11 inches from the end of the Power Cord.

4. **SECURE THE POWER CORD CLAMP AND POWER CORD** to the Mounting Post when installing the two lowermost Warmer Module mounting screws (1) as shown in Figure 2.9. Tighten all mounting screws securely.

5. **CAREFULLY THREAD THE INTERCONNECTING CABLE** (6) out through the Controller opening at the front of the Warmer mounting post.

CAUTION:

- **When connecting the interconnecting cable to the Controller, make sure that the cable is not twisted or crimped.**
- **Make sure that the interconnecting cable is dressed down between the circuit board and the back cross–member of the Controller chassis.**
- **When connecting the interconnecting cable to the Controller, make sure that the key on the cable plug is inserted into the slot on the connector.**

6. **CAREFULLY THREAD THE INTERCONNECTING CABLE** (6) down between the back cross–member (11) and the circuit board (12) on the Controller and connect the cable plug (13) to the connector (14). Make sure that the key on the plug is inserted into the slot on the connector and is firmly seated.

   CAUTION: When installing the Controller in the Mounting Post, use care not to twist, crimp, pinch, or otherwise damage the interconnecting cable.

7. **CAREFULLY DRESS THE INTERCONNECTING CABLE** back into the opening in the Mounting Post, insert the Controller (15) into the opening, and install the Controller mounting screws (16) and lock washers (10).

2.4 ASSEMBLY – WALL MOUNTED INFANT INTENSIVE CARE SYSTEM

Instructions for assembling the Wall Mounted Infant Intensive Care System are provided below; no special tools are required.

(Change 8)

IMPORTANT:

- The Wall Mounted Infant Intensive Care System can be installed to provide any desired floor–to–Bassinet Mattress (top of mattress) height. The height of the Bassinet Mattress is determined by the position of the Mounting Bracket and must be established before the Bracket is installed.
- Figure 2.10 shows a typical installation that will provide a nominal floor–to–mattress height of 39 inches (99 cm). Note that the critical mounting dimension is 33.16 inches (84 cm), the measurement between the floor and the center line of the upper mounting holes in the Mounting Bracket; to raise or lower the mattress level, adjust the position of the Mounting Bracket up or down accordingly before installing.
- It should be noted, that regardless of what floor–to–mattress height is selected, the distance between the mattress and the Warmer Module will remain constant when the Wall Mounted Infant Intensive Care System is fully assembled.

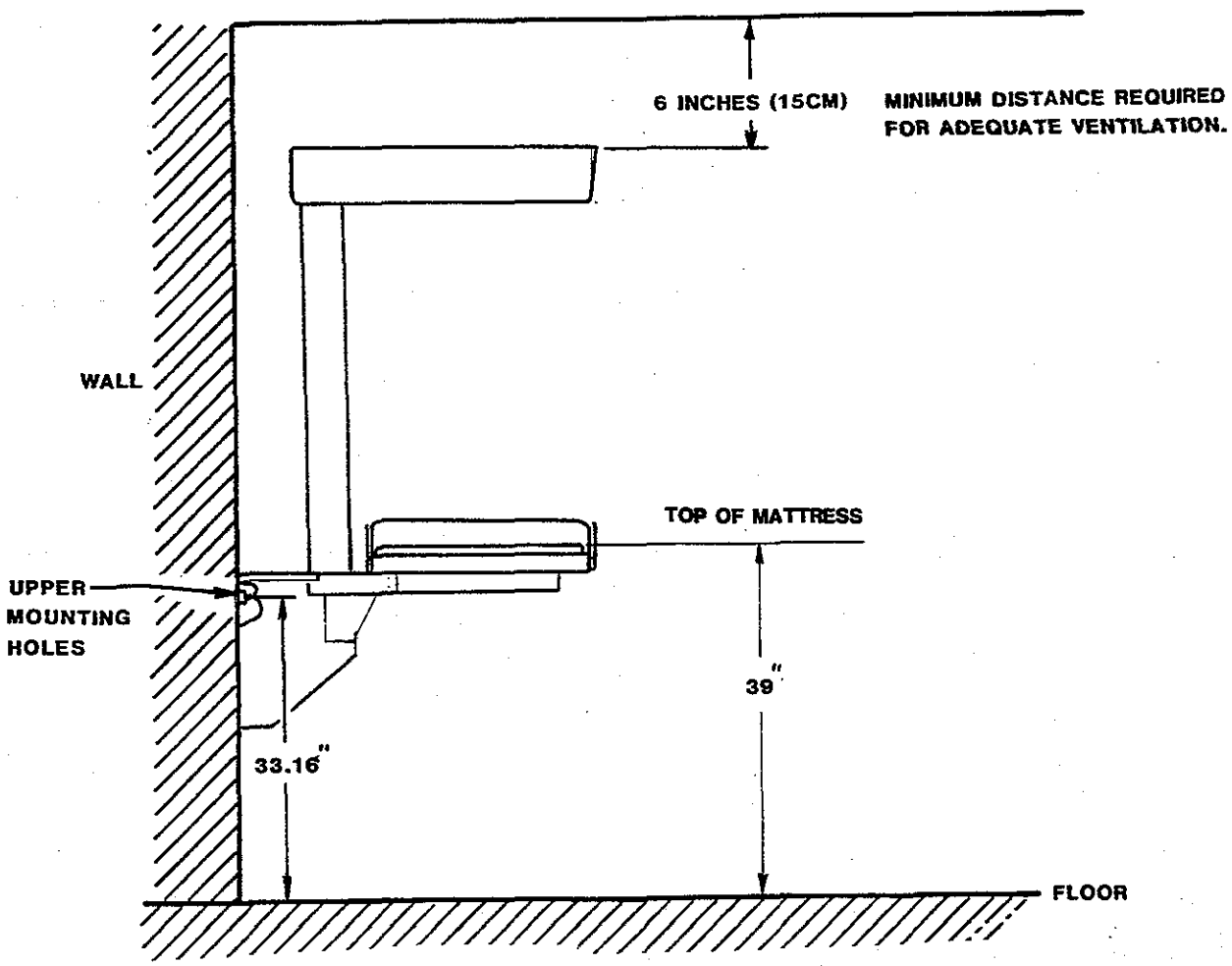


FIGURE 2.10 TYPICAL MOUNTING DETAILS, WALL MOUNTED INFANT INTENSIVE CARE SYSTEM

2.4.1 INSTALLATION OF WALL MOUNTING BRACKET AND BASSINET SUPPORT

IMPORTANT:

- A professional experienced in structural design should be consulted to determine the specific construction and installation details to meet specific requirements.
- The recommended Wall Bracket mounting bolts are 5/16" diameter. Six bolts are required, four along the top of the Wall Mounting Bracket and two at the bottom; the bolts are not supplied with the equipment.
- Under no circumstances should the Wall Mounting Bracket be attached directly to plasterboard–drywall without sufficient reinforcement to meet the load requirements.

1. **LOAD REQUIREMENT SPECIFICATIONS** are as follows:

IMPORTANT: Two sets of Load Requirement Specifications are provided. One set of specifications is for use in installing the equipment when an optional Drawer Module Kit (part number 78 930 89 or 78 930 90) is not installed on the equipment. The second set of specifications is for use when either of the optional Drawer Module Kits is installed on the equipment. Use the appropriate Load Requirement Specifications.

A. If an optional Drawer Module Kit is not installed on the equipment, the load requirements are as follows:

   - When securely fastened, the top four bracket mounting bolts must withstand a direct pull–out force of 1,500 pounds or 375 pounds per bolt. In addition, all six bracket mounting bolts must withstand a downward shear force of 1,300 pounds or 217 pounds per bolt.
   - The wall must also be constructed to withstand a bending moment of 2,180 foot–pounds which is applied at the mounting bracket.

B. If an optional Drawer Module Kit is installed on the equipment, the load requirements are as follows:

   - When securely fastened, the top four bracket mounting bolts must withstand a direct pull–out force of 2,200 pounds or 555 pounds per bolt. In addition, all six bracket mounting bolts must withstand a downward shear force of 1,700 pounds or 283 pounds per bolt.
   - The wall must also be constructed to withstand a bending moment of 3,240 foot–pounds which is applied at the mounting bracket.

2. **REFER TO FIGURE 2.11** and install the Wall Mounting Bracket on the mounting surface.

WARNING: Before proceeding with the assembly of the equipment, the Wall Mounting Bracket installation must be appropriately certified that it meets or exceeds the pull–out, shear and bending moment requirements specified. Failure to observe these precautions can result in an installation that is unsafe and may result in harm to the patient and/or operator.

3. **REFER TO FIGURE 2.12A** and install the Bassinet Support as follows:

   A. Raise the front end of the Bassinet Support (1) and insert the back flange (2) into the opening at the front of the Wall Mounting Bracket.

   B. Slide the Bassinet Support into the Wall Mounting Bracket and lower the front end of the Bassinet Support until the support pins (3) are engaged in the mounting slots (4) on the bracket.

   NOTE: The Bassinet Support is properly positioned when the top edge of the back flange is located under the front edge of the Wall Mounting Bracket.

   C. Refer to Figure 2.12B. Install the two 5/16"–18 shoulder screws (5) and 5/16" lock washers (6) and the two 5/16"–18 x 5/8" screws (7) and 5/16" lock washers (8) that secure the Bassinet Support to the Wall Mounting Bracket; tighten all mounting hardware securely.

2.4.2 INSTALLATION OF MOUNTING POST

NOTE: If the Monitor Shelf Package (part number 78 165 70) and/or I.V. Pole Package (part number 78 166 70) accessories were ordered with the equipment, install the mounting brackets for these accessories on the Mounting Post before installing the post. (See instructions supplied with accessories.) If the mounting brackets have been factory installed, disregard this notice.

1. **REFER TO FIGURE 2.12B.** Insert the bottom end of the Mounting Post (9) into the opening in the top of the Mounting Bracket (10).

2. **ALIGN THE FOUR MOUNTING HOLES IN THE POST** with the four holes in the front of the Wall Mounting Bracket and secure the post in place by installing the four 1/4"– 20 x 1/2" screws (11) and 1/4" lock washers (12) supplied; tighten all mounting hardware securely.

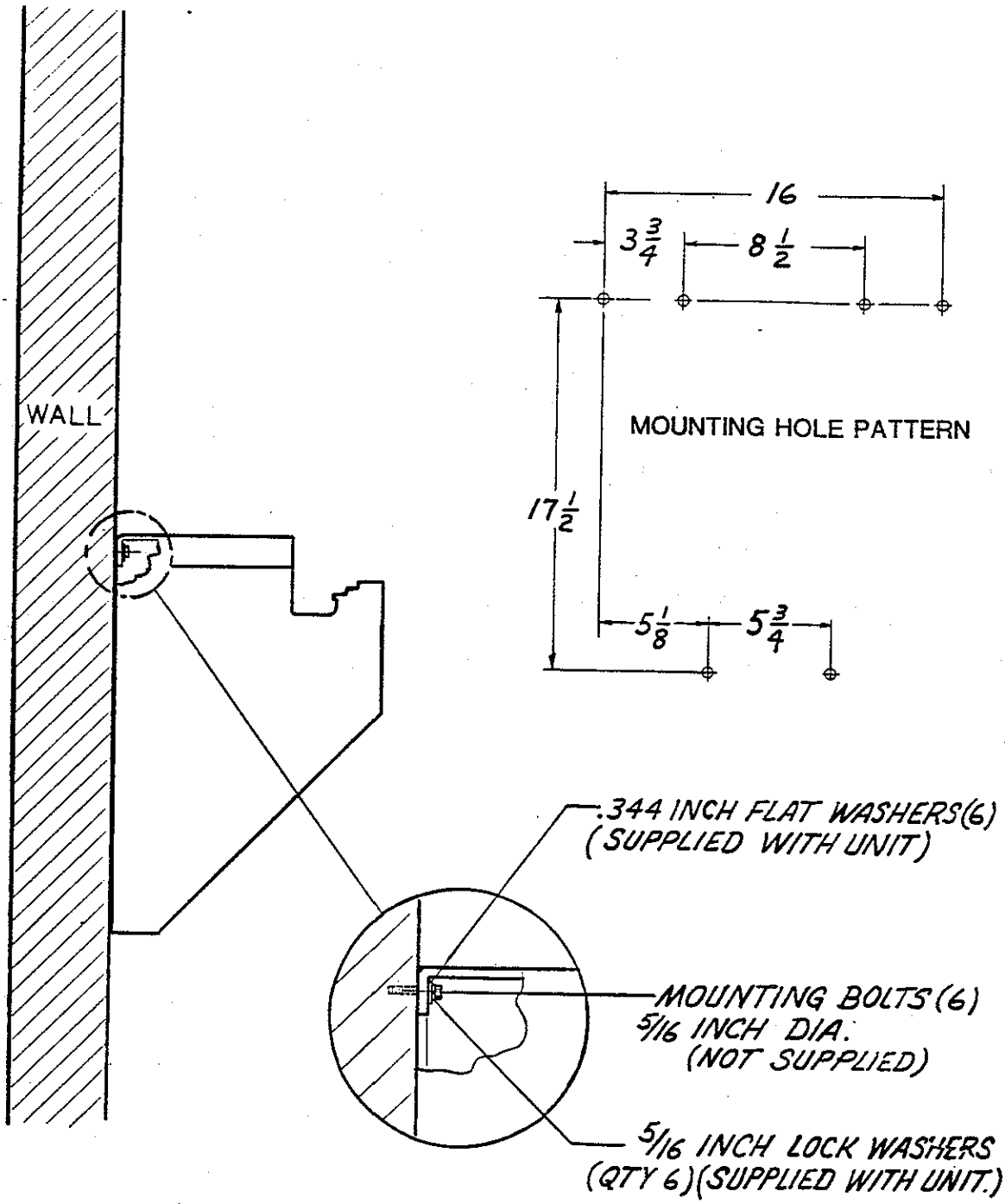


FIGURE 2.11 INSTALLATION OF MOUNTING BRACKET

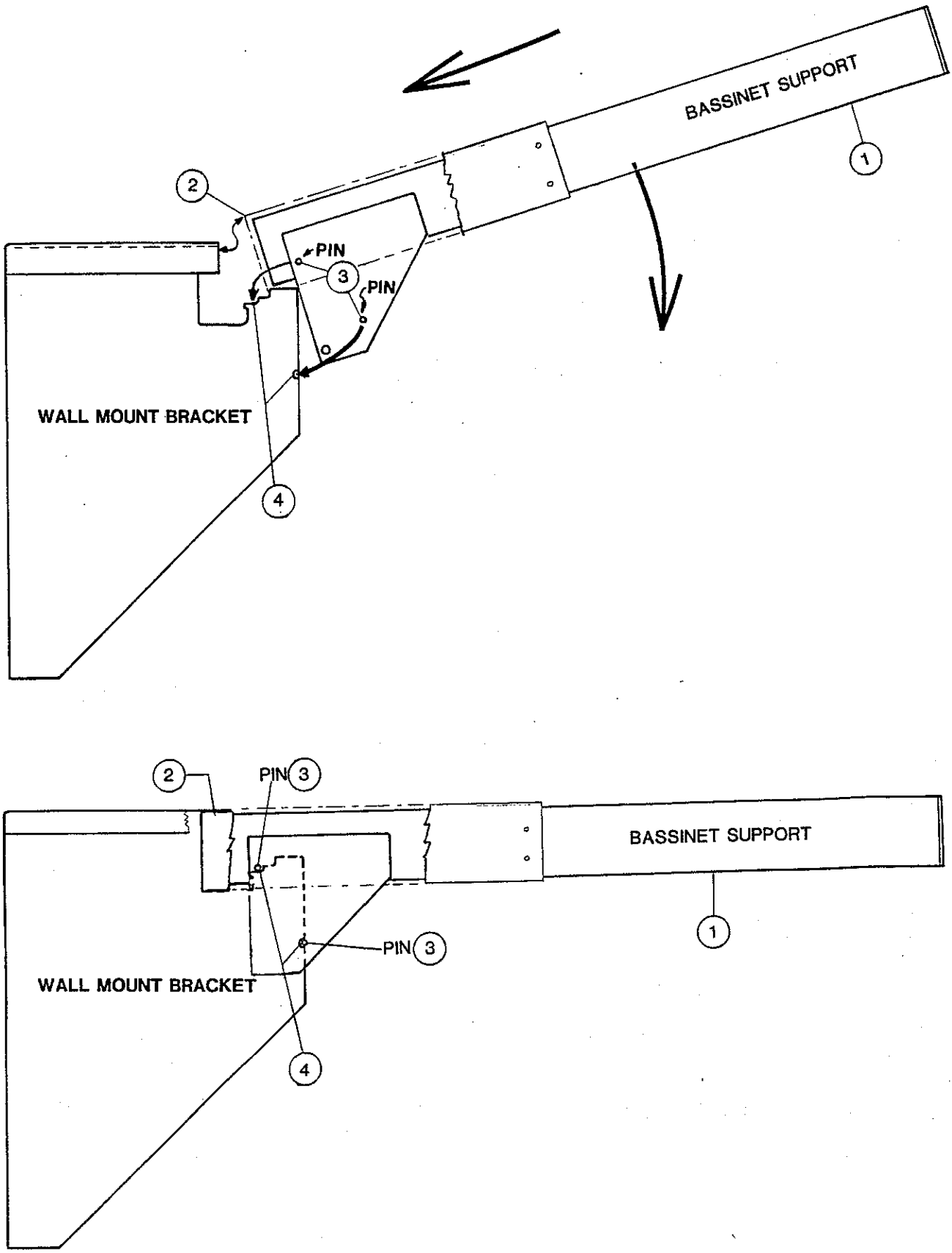


FIGURE 2.12A INSTALLATION OF BASSINET SUPPORT AND MOUNTING POST

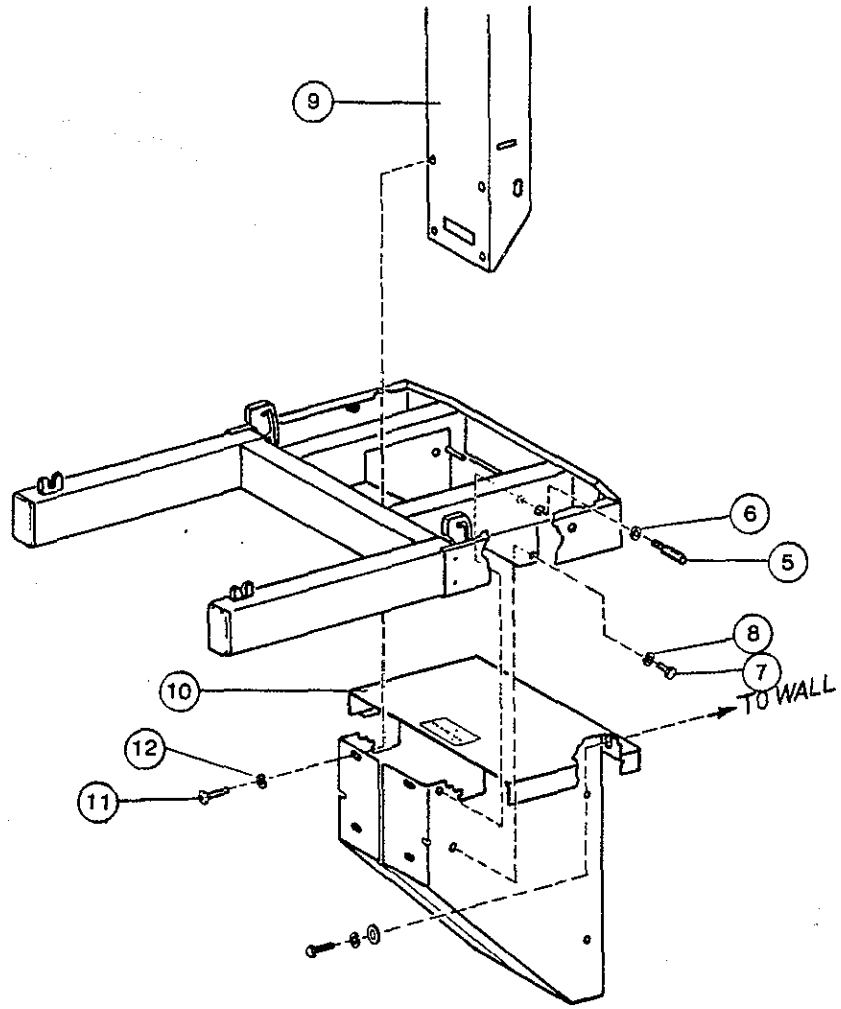


FIGURE 2.12B INSTALLATION OF BASSINET SUPPORT AND MOUNTING POST

2.4.3 INSTALLATION OF POWER MODULE

The procedure for installing the Power Module is the same as that given in paragraph 2.2.3 for the Infant Intensive Care System.

2.4.4 INSTALLATION OF WARMER MODULE AND CONTROLLER

The procedure for installing the Warmer Module and Controller is the same as that given in paragraph 2.2.4 for the Infant Intensive Care System.

2.4.5 INSTALLATION OF BASSINET

The procedure for installing the Bassinet is the same as that given in paragraph 2.2.5 for the Infant Intensive Care System.

2.4.6 INSTALLATION OF INSTRUMENT TRAYS

The procedure for installing the Instrument Trays is the same as that given in paragraph 2.2.6 for the Infant Intensive Care System.

2.5 ASSEMBLY – WALL MOUNTED INFANT WARMER

Instructions for assembling the Wall Mounted Infant Warmer are provided below; no special tools are required.

IMPORTANT: Because the Wall Mounted Infant Warmer can be used with a variety of bassinets which could have different mattress–to–floor heights (infant to radiant source distances), it is imperative that the distance between the underside of the Warmer Module and the top of the bassinet mattress be 32 ± 1 inches (81.3 ± 2.5 cm). The Infant Warmer should be installed on the wall to meet this specification for distance between the underside of the Warmer Module and the top of the bassinet mattress. Figure 2.13 shows the mounting arrangement for a typical bassinet. Note that the critical mounting dimension is the measurement of 1 inch (2.5 cm) between the top of the Bassinet Mattress and the center line of the upper mounting holes in the Mounting Bracket.

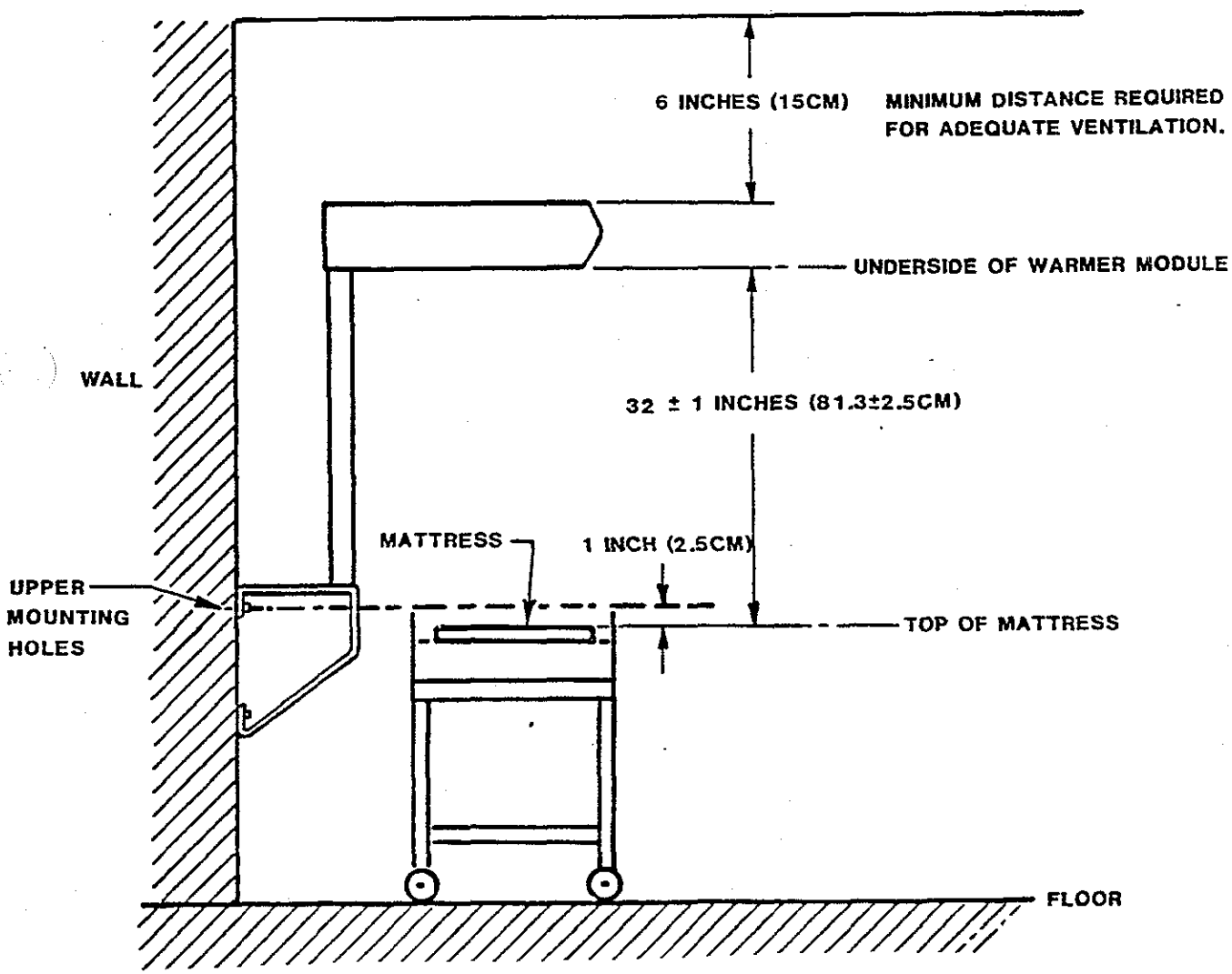


FIGURE 2.13 TYPICAL MOUNTING DETAILS, WALL MOUNTED INFANT WARMER

2.5.1 INSTALLATION OF MOUNTING BRACKET AND MOUNTING POST

1. **REFER TO FIGURE 2.14** and install the Mounting Bracket on the wall.

IMPORTANT:

- Under no circumstances should the mounting bracket be attached to plasterboard–drywall with the plasterboard–drywall being the material into which or through which the bracket is anchored. It may be the surface on which the bracket rests provided that the anchoring of mounting bolts or studs is sustained by a structural member of sufficient strength to meet the pull–out (tensile) load requirements.
- Recommended bolts or studs are 5/16" diameter. When securely mounted, each bolt or stud must withstand a direct pull–out load (tensile) of 150 pounds, exerted perpendicular to the wall.

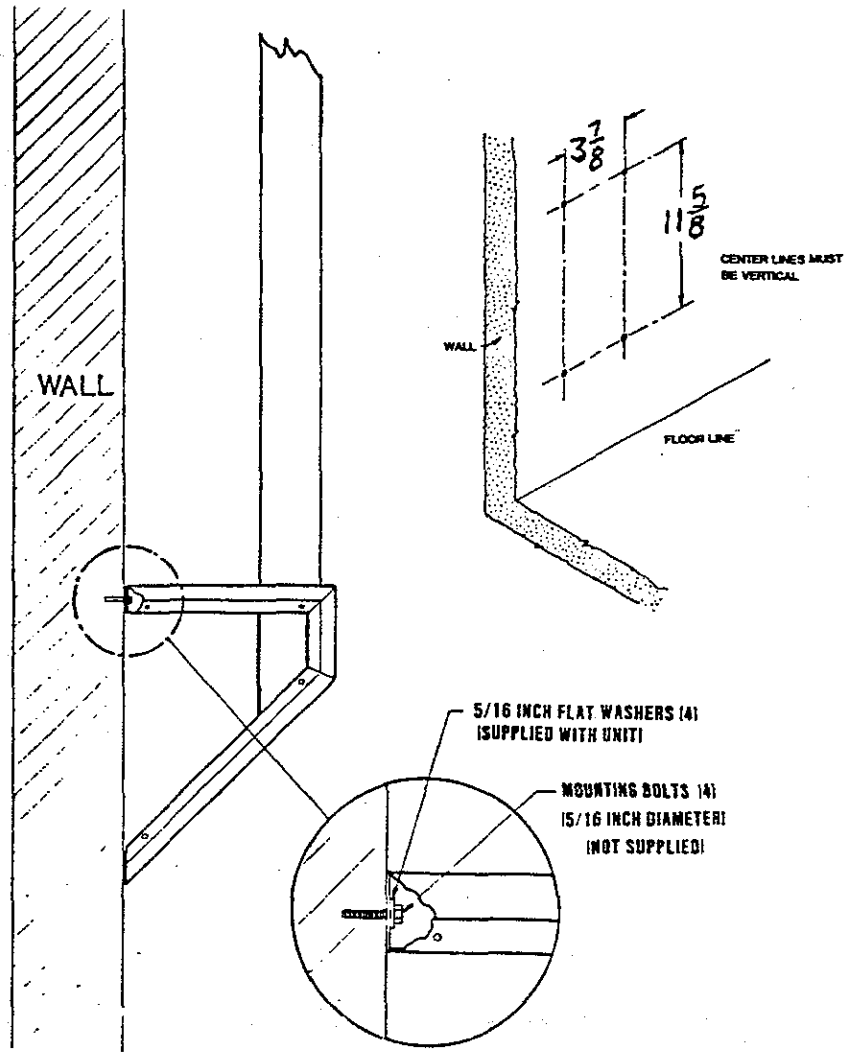


FIGURE 2.14 INSTALLATION OF MOUNTING BRACKET

2. **REFER TO FIGURE 2.15** and install the Mounting Post on the Wall Mounting Bracket using the four mounting bolts and lock washers supplied. Install the two Finishing Panels using the Nylon Panel Fastening Plugs supplied.

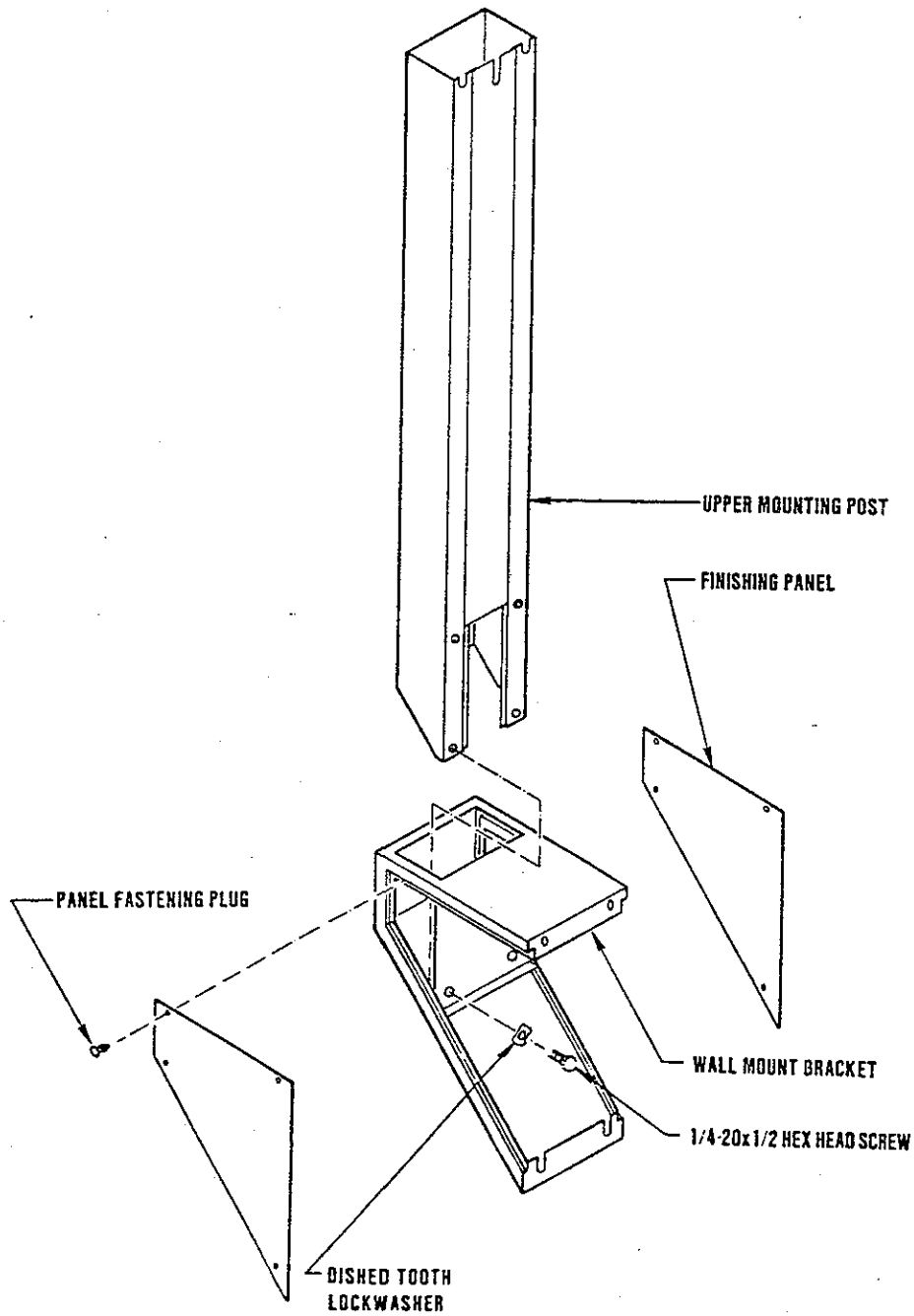


FIGURE 2.15 INSTALLATION OF MOUNTING POST

2.5.2 INSTALLATION OF POWER MODULE

If the Power Module has not been installed in the Warmer Module, it will be necessary to install the Power Module before performing the Warmer Module installation procedure given in paragraph 2.4.3 of this manual. To install the Power Module, use the procedure given in paragraph 2.2.3. If the Power Module has been factory installed, proceed to paragraph 2.4.3.

2.5.3 INSTALLATION OF WARMER MODULE AND CONTROLLER

To install the Warmer Module and Controller, refer to Figure 2.16 and proceed as follows:

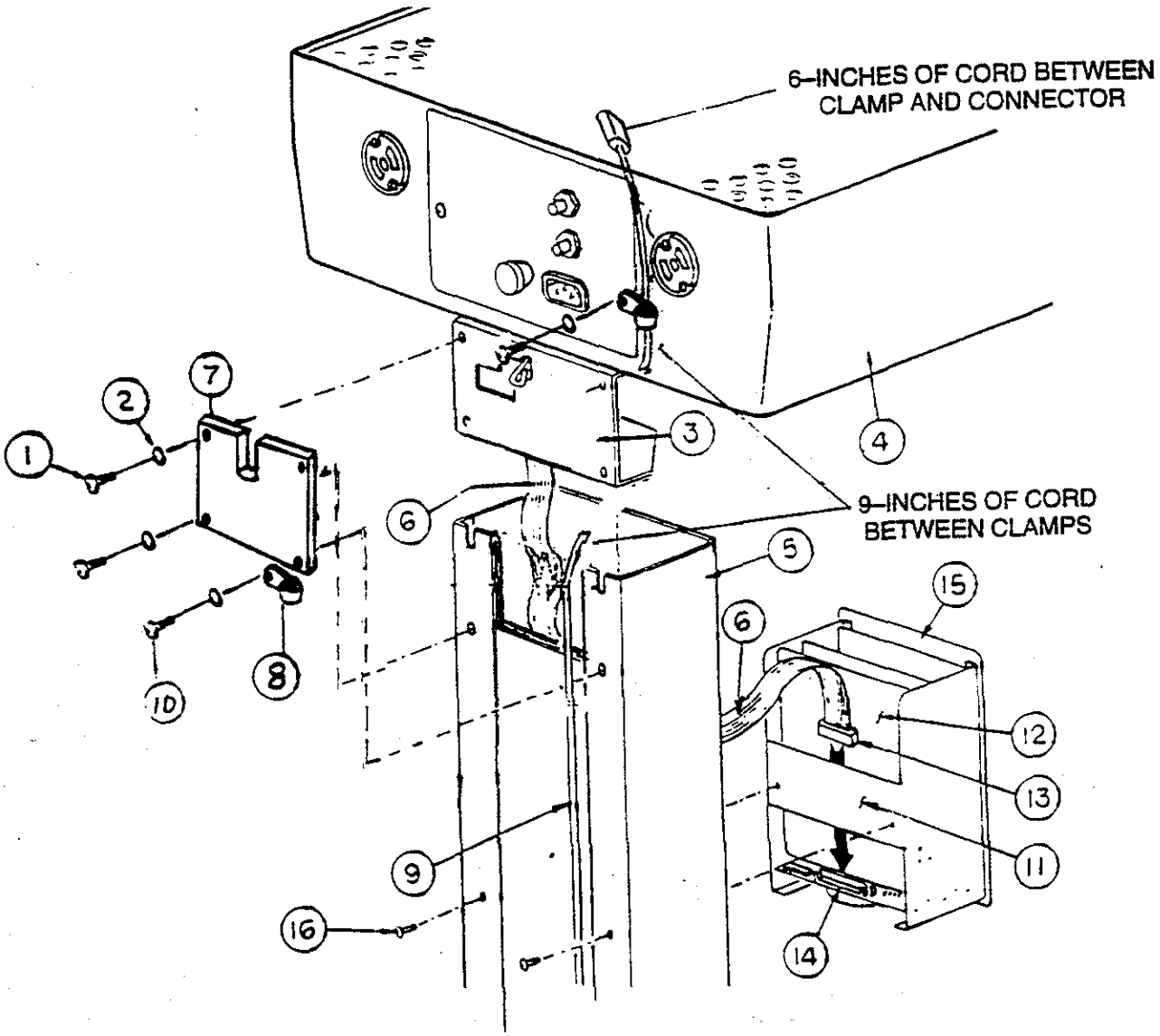


FIGURE 2.16 INSTALLATION OF WARMER MODULE AND CONTROLLER

1. **RAISE THE WARMER MODULE (4)** above the open end of the Mounting Post (5) and insert the interconnecting ribbon cable (6) into the open end of the post.

   CAUTION: Use care to prevent damage to the interconnecting ribbon cable when installing the Warmer Module.

(Change 10)

2. **SLOWLY LOWER THE WARMER MODULE MOUNTING FLANGE** into the open end of the Mounting Post. Refer to 2.16 and secure the Reinforcing Plate (7) and the Warmer Module using the 10 –32 x 1/2" screw(1) and the No. 10 Lock Washers (2) in the upper mounting post.

   IMPORTANT: Make sure that the lock washers (2) are directly under the screw heads and are between the screw heads and the outer surface of the Mounting Post. Spacer Strips must be inside the post.

3. **INSTALL THE POWER CORD CLAMP** (8) on the Power Cord (9); position the clamp **15–inches** from the end of the female Power Cord Connector. Refer to Figure 2.16.

4. **SECURE ONE CORD CLAMP** (8) to the Mounting Post when installing (figure 2.3) the two lowermost Warmer Module mounting screws (10). Secure the second clamp using the Power Module mounting screw. Tighten all screws securely.

IMPORTANT: The 15–inch (9–inches plus 6–inches) service loop identified in Step 3 and the secure tightening of the associated mounting fastener identified in Step 4. are necessary to ensure the proper power cable strain relief during Warmer Module swivel procedures. Failure to perform these installation steps correctly can result in deformation and or disengagement of the ac power connectors with resultant heat damage to these components.

5. **CAREFULLY THREAD THE INTERCONNECTING CABLE** (6) out through the Controller opening at the front of the mounting post.

CAUTION:

- **When connecting the interconnecting cable to the Controller, make sure that the cable is not twisted or crimped.**
- **Make sure that the interconnecting cable is dressed down between the circuit board and the back cross–member of the Controller chassis.**
- **When connecting the interconnecting cable to the Controller, make sure that the key on the cable plug is inserted into the slot on the connector.**

6. **CAREFULLY THREAD THE INTERCONNECTING CABLE** (6) down between the back cross–member (11) and the circuit board (12) on the Controller and connect the cable plug (13) to the connector (14). Make sure that the key on the plug is inserted into the slot on the connector and is firmly seated.

   CAUTION: When installing the Controller in the Mounting Post, use care not to twist, crimp, pinch, or otherwise damage the interconnecting cable.

7. **CAREFULLY DRESS THE INTERCONNECTING CABLE** back into the opening in the Mounting Post, insert the Controller (15) into the opening, and install the Controller mounting screws (16).

2.6 OPERATIONAL CHECKOUT PROCEDURE

WARNING: The equipment should not be used if it fails to function properly. Service should be referred to qualified personnel.

The Operational Checkout Procedure should be performed before the equipment is first placed into use and after any disassembly for cleaning or maintenance.

(Change 10)

2.6.1 ELECTRICAL CHECKOUT

The Electrical Checkout consists of an automatic test sequence that takes place when primary power is applied to the equipment and a series of operator initiated checks. Refer to qualified service personnel if the unit does not perform as follows:

NOTE: The Alarm Test portion of the automatic test sequence tests the alarms by simulating a functional failure.

CAUTION: Make sure that the building power source is compatible with the electrical specifications shown on the unit. For proper grounding reliability, connect the power cord only to a properly marked hospital grade receptacle. DO NOT USE EXTENSION CORDS. If any doubt exists as to the grounding connection, do not operate the equipment.

1. **CONNECT THE POWER CORD** to a primary source of the proper voltage and frequency. Check to make sure the female power cord connector is fully inserted into the male receptacle located in the Power Module.
2. **SET THE CONTROL MODE SWITCH TO SKIN POSITION** and connect the Patient Probe to the PATIENT PROBE connector.
3. **TURN POWER ON** by depressing the WARMER switch on the Warmer Module; the SKIN mode indicator should light. The following automatic test sequence should occur (refer to the label below):

   NOTE: During the automatic test sequence, disregard other extraneous displays or indications which may occur within this sequence.

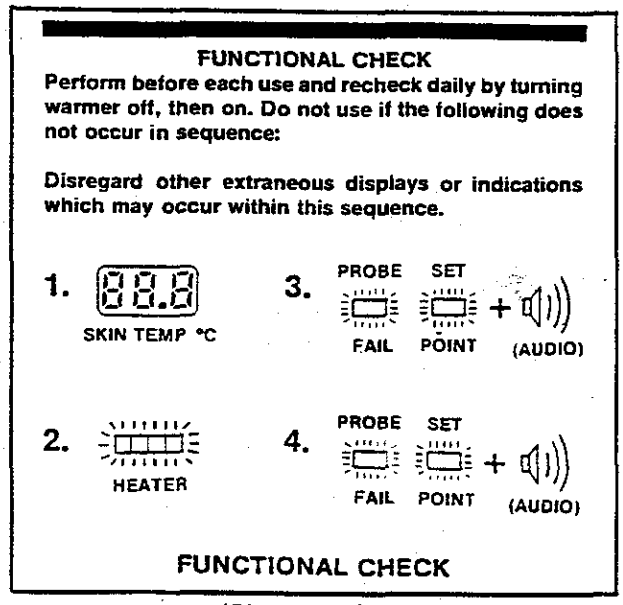
   A. The SKIN TEMP °C digital display should display all eights (88.8).

   B. All HEATER power indicators should light.

   C. After a short delay, the displays blank, the PROBE FAIL and SET POINT alarm indicators light and the audible alarm sounds and then stops.

   D. After a short delay, the PROBE FAIL and SET POINT indicators light again, the audible alarm sounds, and the HEATER power indicators go out.

   When the PROBE FAIL and SET POINT alarms stop, the automatic test sequence is complete.



(Change 10)

4. **DEPRESS THE CAL CHECK SWITCH**; the SKIN TEMP °C display should indicate 36.0 ± 0.1 °C to indicate that the unit is calibrated.

5. **DISCONNECT THE POWER CORD PLUG** from the wall outlet; the POWER FAIL indicator should light, and the audible alarm should sound. Reconnect the power cord plug; the alarm should stop.

6. **SET THE CONTROL MODE SWITCH** to MANUAL; the MANUAL indicator should flash on and off continuously.

7. **SET THE HEAT CONTROL** to MIN and observe the HEATER power indicator; all indicator lamps should be off.

8. **SLIDE THE HEAT CONTROL** slowly toward MAX position; the four HEATER indicators should be illuminated when the control is set to MAX position.

9. **SET THE EXAMINATION LIGHT SWITCH** on the Warmer Module to the ON–1 position; the examination lamp should light. Set the switch to the OFF–0 position, the examination lamp should go out.

10. **THE ELECTRICAL CHECKOUT IS COMPLETE.**

2.6.2 MECHANICAL CHECKOUT

NOTE: No Mechanical Checkout is required for the Free Standing Infant Warmer. Perform the following steps of this procedure that are applicable to your equipment.

1. **CHECK WARMER MODULE SWIVEL OPERATION** as follows:

   A. Depress the locking lever (Figure 2.17).

   B. Swing the Warmer Module 65° to the left of center until it locks in position when the locking lever is released.

      NOTE: The Wall Mounted Infant Intensive Care System and Wall Mounted Infant Warmer Module will swing 90° to the right and left of center.

   C. Depress the locking lever (Figure 2.17) and swing the Warmer Module 65° to the right of center until it locks in position when the locking lever is released.

   D. Depress the locking lever (Figure 2.17) and return the Warmer Module to center position; the module should lock in place when the locking lever is released.

(Change 8)

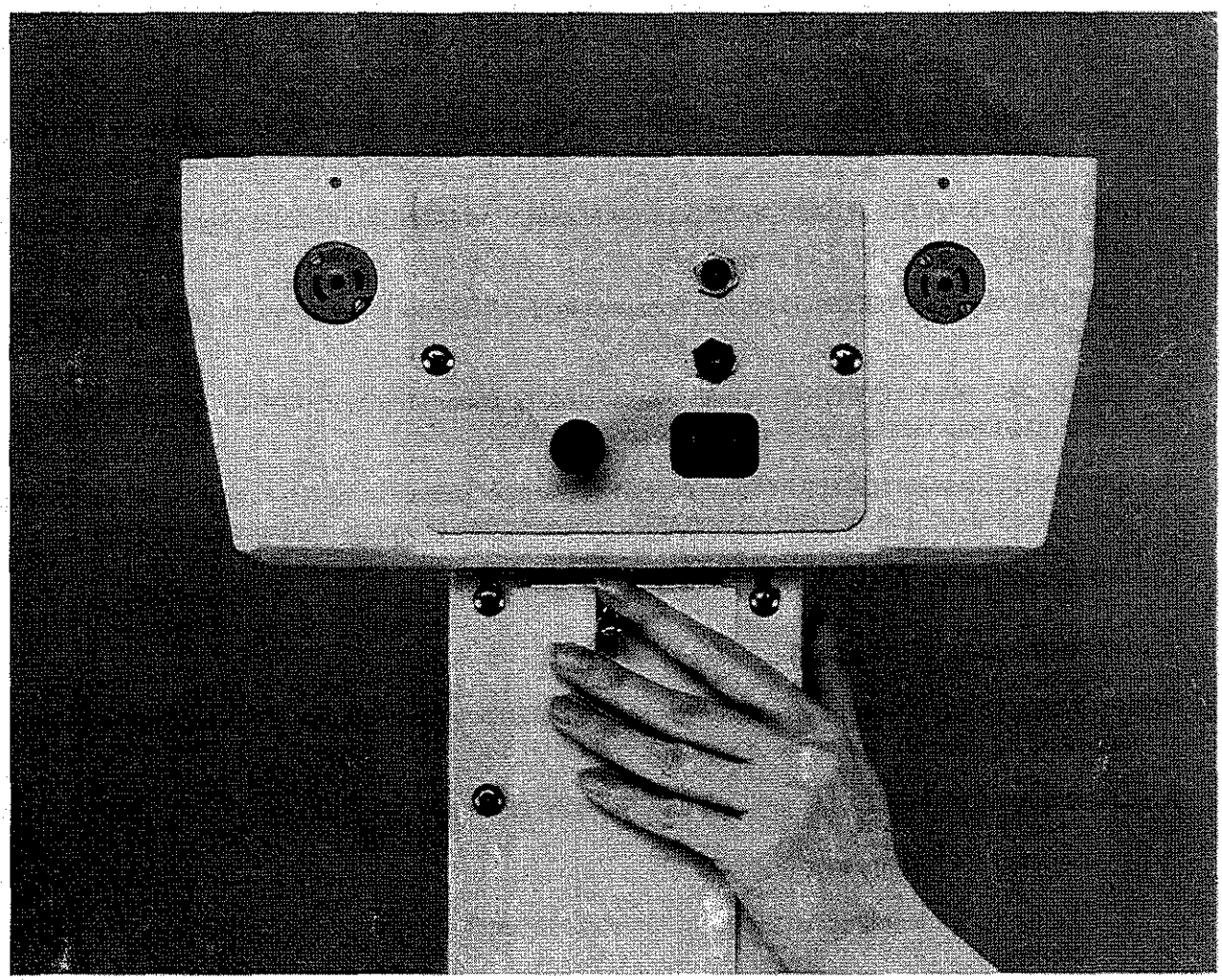


FIGURE 2.17 WARMER MODULE RELEASE LEVER

2. **CHECK BASSINET TILT CONTROL** operation as follows:

   IMPORTANT: Hold the Bassinet with both hands when performing any of the following operations. Use one hand to operate the Bassinet Tilt Control and the other to hold the opposite end of the Bassinet.

> **WARNING: Do not release the Bassinet Tilt Control until it is positively engaged in the Bassinet Tilt Bracket to prevent injury due to accidental repositioning.**

   A. Pull the Bassinet Tilt Control (Figure 2.18) out and raise it up to place the Mattress Tray Assembly in the Fowler position; check for positive engagement.

   B. Pull the Bassinet Tilt Control out and press it to the fully down position to place the Mattress Tray Assembly in the Trendelenburg position; check for positive engagement.

   C. Pull the Bassinet Tilt Control out and place it in the center position to return the Mattress Tray Assembly to the horizontal position; check for positive engagement.

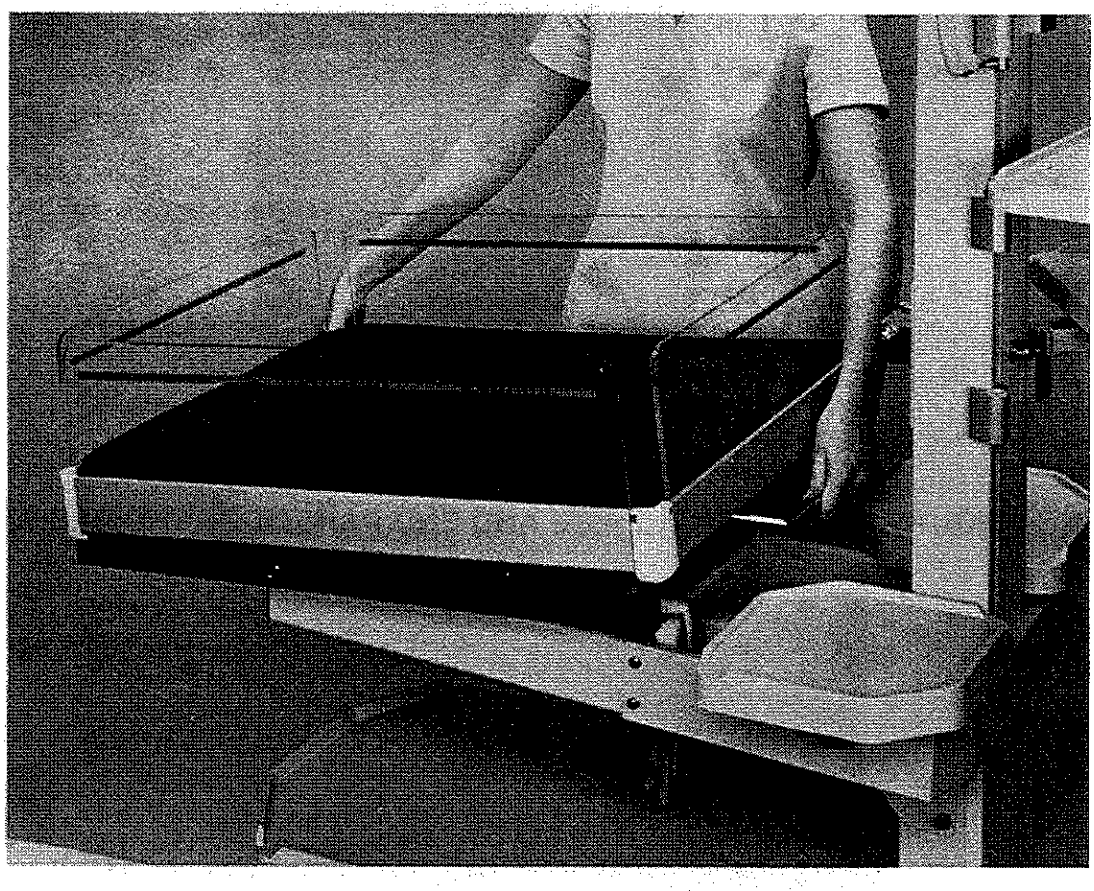


FIGURE 2.18 BASSINET TILT CONTROL OPERATION

3. **CHECK THE SIDE AND END PANELS** (Figure 2.19) of the Bassinet. Raise each panel and pivot it to hang straight down. Return the panel to the original position by reversing this procedure. Check that panel is positively engaged.

4. **CHECK OPERATION OF THE X–RAY TRAY** (Figure 2.20) as follows:

   A. Lower the Front End Panel of the Bassinet as described in step 3.

   B. Refer to Figure 2.20. To remove the X–ray tray from the bassinet, grasp the knob on the tray, lift slightly and pull tray out.

   C. Replace the X–ray tray, by reversing the above procedure.

FIGURE 2.19 CHECKING SIDE AND END PANELS OF THE BASSINET

FIGURE 2.20 CHECKING OPERATION OF X–RAY TRAY

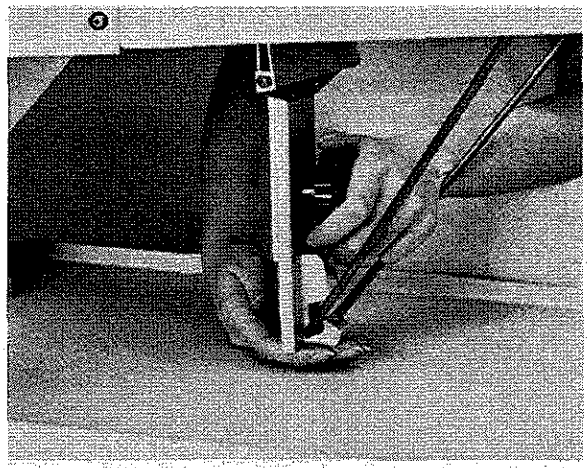
5. **CHECK OPERATION OF DIRECT MAGNIFICATION RADIOGRAPHY (DMR) CASSETTE HOLDER (ACCESSORY)** as follows:

   A. Refer to Figure 2.21. Support the DMR X–ray cassette support (view A) with one hand and rotate the retaining knob in a counterclockwise direction with the other; the DMR support should slide up and down on the support bracket with hand pressure.

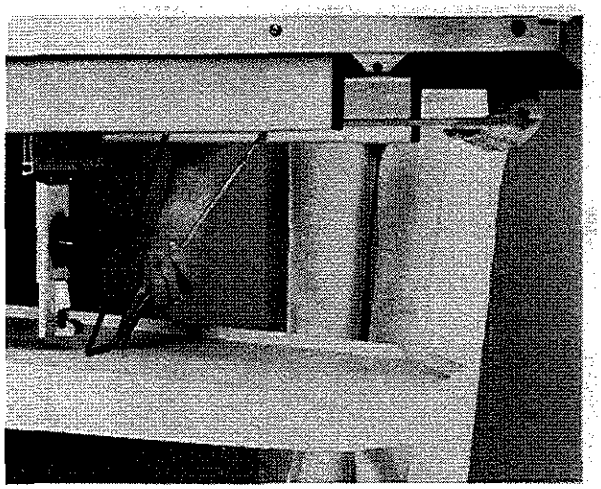
B. Tighten the retaining knob.

C. Release the X–ray shelf brace from the latch block (view B), and pull the shelf brace toward the front of the Bassinet; the shelf should tilt downward (view C).

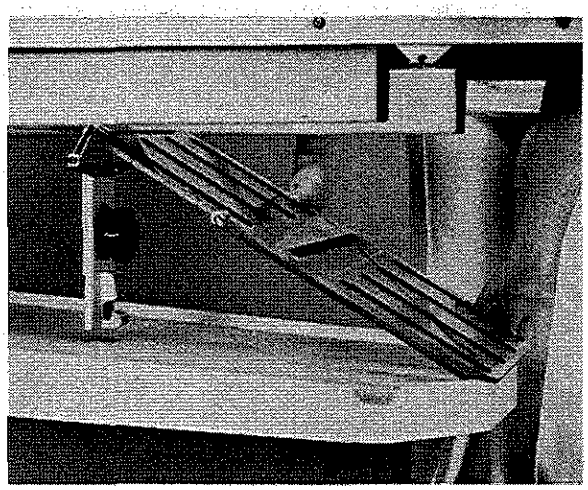
D. Return the X–ray shelf to the horizontal position by reversing step C.



VIEW A



VIEW B



VIEW C

FIGURE 2.21 CHECKING OPERATION OF DMR CASSETTE HOLDER (ACCESSORY)

6. **CHECK CART SHELF OPERATION** as follows:

A. To check the operation of the bottom Cart Shelf, reach through the opening under the front of the shelf (2.22) and pull down on the locking knob; slide the Cart Shelf forward until it reaches a positive stop.

B. If the unit is equipped with a middle Cart Shelf (Accessory), check the operation of the shelf as follows: pull down on the locking knob underneath the Shelf (Figure 2.23) and slide the shelf forward until it reaches a positive stop.

C. To replace either Cart Shelf, slide the Shelf toward the rear of the Cart until the latching pin engages the locking groove in the underside of the shelf. Check that the shelf is positively locked.

7. **CHECK MONITOR SHELF OPERATION (ACCESSORY)** as follows:

A. All Monitoring Shelves are mounted on the Post in swivel mounts as shown in Figure 2.24. Check that each shelf assembly may be pivoted away from the Post by hand pressure.

B. Check that each shelf may also be rotated 360° about its center point.

8. **THE MECHANICAL CHECKOUT IS COMPLETE.**

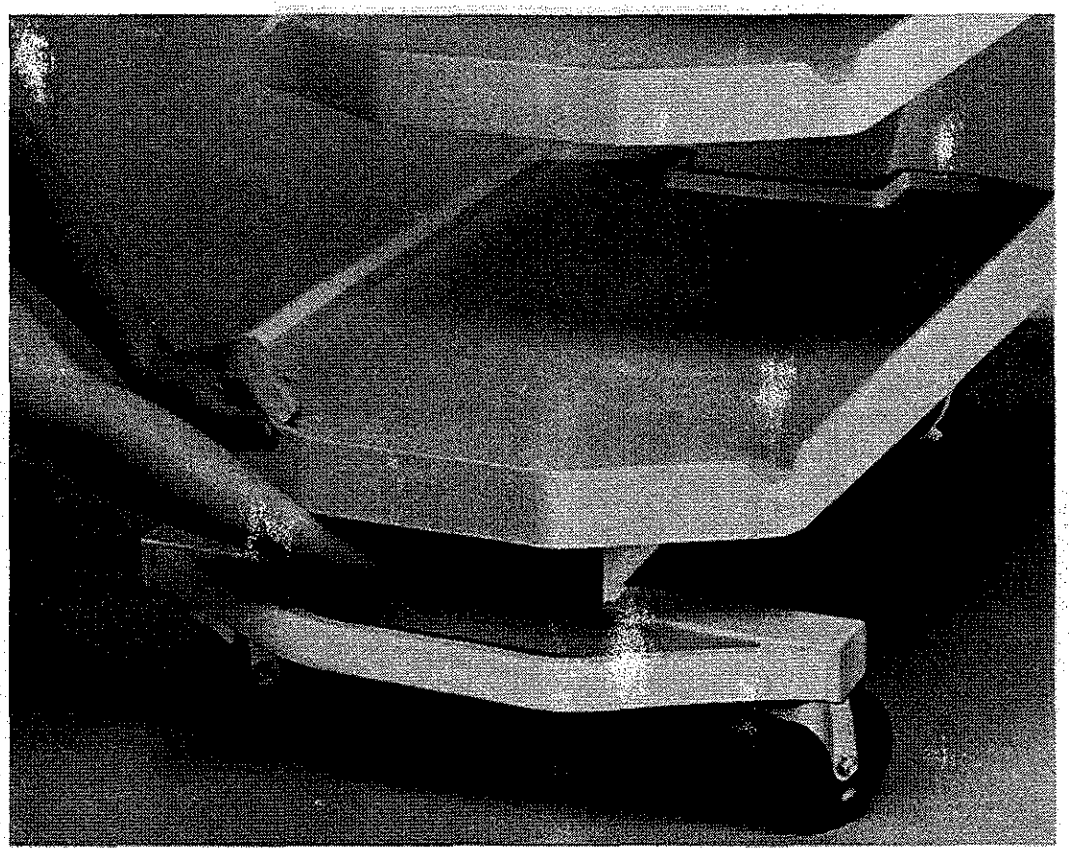


FIGURE 2.22 RELEASING CART SHELF